DIRECTOR OF PUBLIC HEALTH ANNUAL REPORT 2016

FROM THE VERY BEGINNING

Pregnancy and Beyond

BUCKINGHAMSHIRE COUNTY COUNCIL

Foreword

I am pleased to present my third Annual Report for Buckinghamshire since the transfer of Public Health to Buckinghamshire County Council in 2013.

It is a statutory requirement for the Director of Public Health to produce an annual report on the health of the population in their local authority and for the local authority to publish it.

This year's report focuses on pregnancy and the crucial time around birth. It also reports on progress on the recommendations from last year's report on physical activity and provides updates on key health indicators.

Further data on the health of our population can be found in the joint strategic needs assessment here:

www.healthandwellbeingbucks.org/what-is-the-jsna

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Introduction

This year's Director of Public Health Annual Report highlights the importance of pregnancy and the family environment for the health and wellbeing of babies, and the children and adults they'll become. What happens during pregnancy and the earliest years of a child's life has a dramatic impact on every aspect of their life, including their physical and mental health, development, chances of happiness, success at school and work, and health in adulthood. Investing in the early years promotes economic growth and reduces demand on health and social care services.

There are about 6,000 babies born every year in Buckinghamshire. The chances of these babies growing up to be happy and healthy, doing well at school, having healthy relationships as an adult and being able to fulfil their potential depends crucially on what happens in the 9 months before birth and the earliest years of their lives[1]. Their health and future is dependent on the physical and mental health and behaviours of their parents or caregivers before and after they are born, how they are cared for and the circumstances in which they live.

Investing in early child development promotes economic growth and the earlier the investment, the greater the return on investment. It has been estimated that if all children were reading well by age eleven, Gross Domestic Product in England in 2020 could be an extra £23 billion.

The vital importance of the early years is why we need to strive to get the best possible start for every baby and family in Buckinghamshire from the very beginning and why this year I am focusing the Director of Public Health Annual Report on the crucial time around pregnancy and birth.

This report highlights some of the key factors that we need to address to make sure every baby in Buckinghamshire gets the best possible start in life.

> ***We have found overwhelming evidence that children's life chances are most heavily predicated on their development in the first five years of life. It is family background, parental education, good parenting and the opportunities for learning and development in those crucial years that together matter more to children than money, in determining whether their potential is realised in adult life. The things that matter most are a healthy pregnancy; good maternal mental health; secure bonding with the child; love and responsiveness of parents along with clear boundaries, as well as opportunities for a child's cognitive, language and social and emotional development. Good services matter too: health services, Children's Centres and high quality childcare.***
>
> ***Later interventions to help poorly performing children can be effective but, in general, the most effective and cost-effective way to help and support young families is in the earliest years of a child's life.***
>
> **Report of the Independent Review on Poverty and Life Chances[100]**

1 Healthy eating and healthy weight in pregnancy

Why it's important

A healthy diet and being a healthy weight is very important for all women, even before they become pregnant. Women who are trying to become pregnant should ensure they are taking folic acid supplements (also known as vitamin B9) to reduce the risk of birth defects, such as spina bifida, in their baby[2].

Nationally, about half of women of child bearing age are overweight or obese, with 1 in 6 (15.6%) obese when they become pregnant[3]. The average height for a woman in the UK is 1.64m (or just over 5 foot and 4 inches). At this height, a woman weighing just over 81kg (or 12 stone and 10lbs) will be classified as obese.

Being a healthy weight is important for the health of the mother and baby and reduces the risk of complications occurring during pregnancy and labour.

Excess weight in pregnancy can result in serious complications during and after pregnancy, including gestational diabetes, miscarriage, pre-eclampsia (serious condition involving high blood pressure, which usually occurs after 20 weeks of pregnancy), blood clots and death. Obese women are more likely to have longer, more complicated deliveries and spend longer in hospital. Because of these risks, obese women often don't have the same choice about where and how they deliver. As well as an increased risk of stillbirth, the baby has an increased risk of long term health conditions, obesity or becoming overweight as an adult[4].

These risks highlight why it is so important to maintain a healthy weight before becoming pregnant and to eat a healthy diet and stay active during and after pregnancy.

There are no formal evidence-based guidelines from the UK government on what constitutes normal weight gain during pregnancy. The old saying "I'm eating for two", definitely doesn't apply. The National Institute for Health and Care Excellence (NICE) recommends that women only need to eat an extra 200 calories a day only during the third trimester. To give their baby the best start in life women should eat a balanced, healthy diet and remain physically active during pregnancy, rather than dieting.

Ideally a woman should lose weight before becoming pregnant to ensure they're a healthy weight in pregnancy.

A woman who is active during her pregnancy will find it easier to adapt to her changing shape and weight gain, cope better with labour and get back to a healthy weight afterwards. Women should not stop being active just because they are pregnant. It is better for mother and baby if pregnant women are active for as long as they feel comfortable. Pregnant women should aim to not be so out of breath they cannot hold a conversation while they are exercising, and should avoid high-impact sports, scuba diving and any physical activity where there is a risk of falling[5,6].

Losing weight after pregnancy and child birth can be really challenging, as it can be difficult to eat a healthy diet and take regular exercise. However, breastfeeding can help mothers lose weight, as well as providing many benefits to the baby.

A healthy diet is important for mothers and babies. National advice is that all pregnant and breastfeeding women and children between the ages of six months and five years should take vitamin supplements[7]. Women who are pregnant or have children under the age of four years and are on benefits or under 18 can get free vouchers every week to spend on milk, plain fresh and frozen fruit and vegetables and infant formula milk, as well as free vitamins[8].

The Buckinghamshire Picture

Almost three quarters of women living in Buckinghamshire deliver their babies at Buckinghamshire Healthcare Trust. An audit in 2013 in Buckinghamshire Healthcare Trust found that 71% of pregnant women had their body mass index (BMI) recorded when they booked into antenatal care. 55% of pregnant women were healthy weight at booking, 27% were overweight, and 17% were obese[a]. This would amount to approximately 1,630 pregnant women who are overweight and 1,110 obese per year in Buckinghamshire.

In Buckinghamshire, midwives refer pregnant women who are obese (BMI of 30 or over) at antenatal booking to a Royal College of Midwives approved weight management programme. The programme supports women to prevent excess weight gain during pregnancy by eating a balanced, healthy diet and being physically active. In 2015/16, 68 women were referred to the weight management service.

Buckinghamshire's Active Bucks programme provides lots of family friendly activities, including some specifically for new parents.

For the contact details of all services included in this report please visit the public health webpages at www.healthandwellbeingbucks.org/public-health.

2 Smoking in pregnancy

Why it's important

Tobacco smoking remains the single greatest cause of preventable illness and premature death in England[9]. It is also the largest single cause of inequalities in health, accounting for about half of the difference in life expectancy between the lowest and highest income groups[10]. There is no safe level of exposure to tobacco smoke for an unborn baby or its mother[11].

There are many harmful effects from smoking in pregnancy on the health of the mother. Women who smoke during pregnancy have an increased risk of miscarriage and stillbirth, as well as more complications during pregnancy and labour, including bleeding during pregnancy, separation of the placenta from the uterus (placental abruption), premature rupture of membranes (water breaking) that can lead to further complications.

Smoking in pregnancy also has a wide range of harmful effects on the growth and development of the unborn baby by restricting the oxygen supply to the baby and introducing toxins into its system. Babies of mothers who smoked during pregnancy are more likely to be born prematurely, are twice as likely to have a low birth weight and have about a 40% higher rate of infant death, including being up to 3 times as likely to die from sudden unexpected death in infancy (SUDI)[12,13]. There is also an increased risk of problems later in a child's life, such as obesity and asthma. Smoking in pregnancy can affect a baby's growing brain, affecting overall intelligence and increasing the risk of mental health problems, such as attention deficit hyperactivity disorder (ADHD), conduct problems, anxiety and learning difficulties[14,15].

If children grow up in a household where people smoke they are more likely to suffer from lung infections, asthma and meningitis. Breathing in other people's smoke can also increase the risk of lung cancer and other cancers in the non-smokers in the household.

Pregnant women who don't smoke are also vulnerable to the smoking of others, i.e. second hand smoke. Their unborn baby can experience an increased risk of neonatal death, stillbirth, low birth weight, prematurity, and congenital malformation[16,17]. Women exposed to second hand smoke are also at increased risk of experiencing difficulty in getting pregnant.

Smoking in cars is particularly hazardous as levels of second hand smoke have been found to be dangerously high due to the enclosed space, even when the vehicle is well ventilated. Legislation has been introduced from 1st October 2015 making it illegal to smoke in any private vehicle enclosed wholly or partly by a roof when a person under 18 years old is in the car, regardless of whether the windows are open, the air conditioning is on, or the car is parked with the door open.

Finally, children of smokers are also more likely to grow up to smoke themselves, increasing the harmful effects over their lifetime. The good news is that stopping smoking before or during pregnancy reduces these risks. Quitting early brings the greatest benefits for the child, but quitting at any time will improve the health of mother, baby and other household members.

In England, 11% of pregnant women are still smokers at the time their baby is born[18]. The estimated cost to the NHS of treating mothers and their babies (up to one year old) with problems caused by smoking during pregnancy is between £20 and £87.5 million each year[19].

Mothers aged 20 or under are 5 times more likely to smoke throughout their pregnancy (45%) than those aged 35 and over (9%)[20]. Pregnant women are more likely to smoke if they have lower levels of education, live in rented accommodation, are single or have a partner who smokes[21]. Mothers in routine and manual occupations are more than 4 times as likely to smoke throughout pregnancy compared to those in managerial and professional occupations (29% and 7% respectively)[22].

Women are more likely to quit smoking or reduce the amount they smoke during pregnancy than at any other time during their life[23]. Smoking cessation programmes in pregnancy reduce the proportion of women who continue to smoke in late pregnancy, and reduce low birthweight and preterm birth[24]. A range of interventions are needed, targeting pregnant women who smoke and reducing their exposure to passive smoking, as well as continuing to reduce smoking across the population.

The Royal College of Paediatrics and Child Health (RCPCH) recommend that commissioners and providers must ensure the widespread implementation of the NICE guideline, *Smoking: Stopping in pregnancy and after childbirth*, with a particular emphasis on routine carbon monoxide testing, training of health care staff and the setting of local targets to monitor implementation[25], while continuing to reinforce population level efforts to reduce smoking, particularly amongst deprived populations[26]. This will be the most effective way of reducing smoking in adults with dependent children. Reducing adolescent smoking is the most effective way of reducing smoking amongst the next generation of parents.

Evidence shows that it is possible to double the number of pregnant women who stop smoking during pregnancy if carbon monoxide screening and an opt-out referral system is put in place[27]. Financial incentives to promote smoking cessation during pregnancy show promise, particularly in socio-economically disadvantaged women and heavy smokers[28].

The Buckinghamshire Picture

In 2015/16, 7.4% of mothers, 432 women, in Buckinghamshire were smoking at the time their baby was born. This rate has stayed relatively stable in Buckinghamshire over the last 5 years. In 2015/16, 252 pregnant women were referred to smoking cessation services. 95 women set a quit date and 40 quit, equating to a 42% quit rate.

In Buckinghamshire, women aged 20 and under are 6 times more likely to smoke throughout pregnancy (25.6% smoked at delivery) than those aged 35 and over (3.8% smoked at delivery), and White British women were more likely to smoke during pregnancy (9% smoked at delivery) than women from other ethnic groups (8% Mixed ethnic group, 0.8% Asian/ Asian British, 3.6% Black/Black British and 2.7% other ethnic groups smoked at delivery).

Smoking cessation services

In Buckinghamshire, pregnant smokers are able to access free professional help through the local smoking cessation service. All pregnant women are tested for carbon monoxide at their antenatal booking appointment, and 28 weeks, and referred to the service. Women can also self-refer.

A dedicated Smoking in Pregnancy advisor supports women weekly for up to 8 weeks, helping them to manage their cravings and supporting them to quit smoking for good.

Sessions are tailored to the individual, as the advisors recognise that everyone will have a different journey. Nicotine Replacement Therapy, such as patches, is also available on prescription for up to 8 weeks. In 2015/16, 32% of the young pregnant women supported by the Buckinghamshire Family Nurse Partnership service smoked at intake, compared with 31% nationally. Of those who smoked, 43% had quit by 36 weeks of pregnancy. Of the remaining women still smoking at 36 weeks pregnant, 66% cut down on their smoking, compared with 61% nationally.

3 Women using alcohol or drugs during pregnancy

Why it's important - alcohol

In the UK, we, and young people in particular, are drinking less than a decade ago, but there are still significant sections of the population whose alcohol drinking causes significant harm[29]. Although many pregnant women do not drink alcohol in pregnancy, those that do can cause significant harm to their babies, with higher levels of drinking causing greater problems.

Recommendations for the safe level of alcohol consumption during pregnancy have frequently changed, which has been confusing, but there is no proven safe amount of alcohol to drink during pregnancy. If a woman drinks alcohol during pregnancy then some of the alcohol will pass through the placenta to the baby, which can lead to miscarriage or long-term harm to the baby. Drinking more than 1 to 2 units per day during pregnancy increases the risk of babies being born at a low birth weight or prematurely[30]. Current guidelines recommend that if you are pregnant or planning a pregnancy, the safest approach is not to drink alcohol at all, to keep the risks to your baby to a minimum[31].

Different strengths and sizes of alcoholic drinks can make it difficult for people to work out how much alcohol they are drinking, so the only way to be certain that the baby is not harmed is for pregnant women to not drink at all during pregnancy. There are also differing opinions about whether it is safe to drink alcohol while breastfeeding, but anything a mother eats or drinks can find its way into breastmilk. Research has shown that regularly drinking more than 2 units of alcohol a day while breastfeeding may affect your baby's development. It is recommended that breastfeeding mothers drink no more than 1 to 2 units of alcohol per week[32].

Drinking more than the recommended levels of alcohol at any stage during pregnancy can affect the way the baby develops and grows resulting in lifelong effects. Drinking alcohol during pregnancy increases the risk of birth defects in the baby, including growth restriction, abnormal facial features and brain damage. Drinking alcohol during pregnancy leads to a range of clinical syndromes called fetal alcohol spectrum disorders (FASD). Children may have difficulties with learning, concentration, decision making, planning and memory. Children born with FASD may also go on to have poorer educational outcomes, mental health problems and substance abuse. The most severe of these conditions is fetal alcohol syndrome (FAS) in which children have restricted growth, facial abnormalities and learning and behavioural disorders, which may be lifelong[33].

Not all women who drink alcohol during pregnancy will have a child with FASD. The risk is higher in women who often 'binge' drink large amounts of alcohol[34]. Populations with the highest levels of frequent binge drinking have the highest incidence of FASD. The level and nature of the resulting conditions relate to the amount of alcohol drunk and the stage of pregnancy at the time.

Up to a third of pregnant women in the UK reported binge drinking (defined as drinking 6 units or more in one sitting) in their first trimester, dropping to around just 1% in the second trimester[35].

This pattern suggests women may not have known they were pregnant at the time of binge drinking, and stopped once they found out. However, whether pregnant or not, it is best to avoid binge drinking as this is associated with a range of health problems for women and their unborn children.

Why it's important - drug misuse

Women who misuse drugs during pregnancy often lead chaotic lives, and this, and the substance misuse can place both mother and baby at risk of serious harm and even death[36]. Drug dependency also often co-exists with a range of other difficulties, including mental health problems[37].

There are a wide range of harmful effects to babies from maternal drug use. Babies exposed to cannabis during pregnancy are more likely to have low birth weight and the problems associated with this in childhood and as adults.

Cocaine easily passes through the placenta to baby and can cause complications fatal to mother and baby. It can cause the placenta to separate from the uterus (placental abruption) resulting in severe bleeding and can cause premature rupture of the placental membrane (waters breaking) resulting in babies born prematurely[38].

When pregnant women use heroin it passes through the placenta, causing the baby to also become dependent on heroin. When the baby is born they will be irritable, cry constantly, have tremors, disturbed vision, disturbed sleep patterns, gain weight slowly and may have to spend a long time in hospital after they are born[39]. This is known as neonatal abstinence syndrome. Mothers of babies with neonatal abstinence syndrome may find it hard to form strong bonds with their babies. Heroin and other opiate use in pregnancy may also cause babies to be born at a low birth weight and/or prematurely.

One of the key factors that can reduce this harm is helping pregnant women misusing substances to access and maintain contact with maternity and substance misuse services.

Substance misuse in parents or other care givers often compromises the ability of parents to care for their children effectively and, unless effectively addressed, increases the risk that children need to be taken into local authority care.

The Buckinghamshire Picture

Alcohol and substance misuse

UK data from 2010 suggest that most women either do not drink alcohol (19%) or stop drinking during pregnancy (40%)[40]. A recent study showed that women cut down their drinking as their pregnancy progresses[41]. It found that 84% of mothers in the UK were drinking alcohol in the first trimester of pregnancy, which went down to 39% in the second trimester. In the first trimester, 28% of mothers were drinking no more than 1 to 2 units weekly and 56% were drinking more than that, with a median consumption at 4 units per week. By comparison, in the second trimester, 37% of mothers were drinking no more than 1 to 2 units weekly, and 2% were drinking more than that, with a median consumption at 0.8 units weekly.

In Buckinghamshire, this would equate to 5,120 women drinking alcohol during the first trimester, 3,420 drinking more than 1 to 2 units each week and 2,380 women drinking in the second trimester, with 120 drinking more than 1 to 2 units each week.

All pregnant women in Buckinghamshire are asked about the current and past history of substance misuse at their antenatal care booking appointment. Women who are currently or have previously misused substances are given information and advice and are all referred for consultant obstetrician antenatal care. Women currently misusing substances are offered referral to specialist substance misuse services.

Nationally, around 1% of women entering drug treatment are pregnant and 61% are parents[42]. Of those women who are parents, 48% have at least one child living with them, 31% have a child living with a family member or partner and 11% have their children living in care[43].

In 2015/16, data from the Substance Misuse Services in Buckinghamshire showed that less than 2% of all women newly presenting to each service (less than 5 women) were pregnant. This is not statistically different to the England average.

In Buckinghamshire in 2015/16, 970 people sought help from Open Access Substance Misuse Services in Buckinghamshire. Of these 22% were living with their own children (188 people) or their partners children (25 people). A further 31% were parents who were no longer living with their children. In 2015/16, 554 people entered Structured Treatment for substance misuse 25% of these were parents living with their own children (111 people) or other's children (29 people). A further 31% of newly presenting service users were parents who were not living with their children.

In Buckinghamshire, clients in substance misuse treatment are informed of the dangers of FAS and the effects of all illicit substances, along with some prescribed medication, as soon as pregnancy is disclosed. All service users are informed that there is a pregnancy lead available at the substance misuse treatment service for them to talk to if they think they may be pregnant or are thinking about becoming pregnant. All pregnant service users are referred to the substance misuse treatment service pregnancy lead and the specialist Safeguarding Midwife and a three way appointment set up to ensure continuity of care. The pregnancy lead will attend all meetings with the midwives at the designated hospital both before and after the baby is born. Regular multiagency midwife liaison meetings are held to review cases and act on any risks identified.

Following the birth of the baby, close liaison and communication between all the relevant services seeks to ensure the best possible support for the baby and family.

4 The impact of social factors on pregnancy and children's health and development

Why it's important

The environment in which children grow up is vitally important to their health, development and achievement as children and adults.

Young children thrive in environments that are predictable and responsive to their needs. Adverse experiences or events in childhood have profound effects on the life of a child. Adverse experiences include a dysfunctional home, which might be due to domestic violence, substance abuse, or parental absence; child neglect or abuse; and losing a parent due to separation, divorce or death. These factors (known as ACEs) have been shown to increase the risk of poorer school achievement, substance misuse, mental health problems, unintentional teenage pregnancy, obesity, heart disease, cancer, unemployment, violence and imprisonment[44,45]. The more adverse childhood events experienced, the higher the likelihood of poor outcomes[46].

The early years are when children develop their emotional intelligence, empathy and their resilience to cope with life's challenges. As a result, any adversity a young child experiences in the first few years of their life that impacts on the bond between parent and baby will have a disproportionate effect on their development[47].

The social and financial resources available to parents and the physical environment the child lives in also profoundly affect their development.

Socioeconomic factors and living conditions

Living in poverty has a serious impact on children's lives, negatively affecting their educational attainment, health and happiness, as well as having long-term effects lasting into adulthood[48]. The longer the period of poverty lasts for, the greater the impact.

Due to the challenges of balancing the responsibility of caring for their children with a job, lone parents are more likely to be unemployed, employed part-time or have unstable employment than two parent families[49]. Children in single parent families are twice as likely to be in relative poverty as those in two parent families (44% and 24% respectively)[50]. 35% of children whose single parent works part-time are in poverty, compared with 19% of those whose single parent works full-time[51]. Research suggests that growing up in a single parent family is associated an increased risk of mental health problems, substance misuse and suicide[52].

The quality of housing also impacts on a child's health. Children living in cold and damp homes are more likely to experience long term ill-health and disability. They are more likely to experience mental health problems, poor growth, slower cognitive development and respiratory problems. Children living in cold, damp and mouldy homes are between 1.5 and 3 times more likely to develop symptoms of asthma than children living in warm and dry homes[53].

High quality birth to five year programmes for disadvantaged children can deliver a 13% return on investment. From before they're born to age five, the brain develops rapidly, laying the foundation for skills necessary for success in school and life. All children need support to develop these skills, but children from poorer or chaotic families who are most in need, are often the least likely to get the support they need.

> *The highest rate of return in early childhood development comes from investing as early as possible, from birth through age five, in disadvantaged families. Starting at age three or four is too little too late, as it fails to recognize that skills beget skills in a complementary and dynamic way. Efforts should focus on the first years for the greatest efficiency and effectiveness. The best investment is in quality early childhood development from birth to five for disadvantaged children and their families.*
>
> **James J. Heckman**
> **Nobel Prize-winning economist, December 7, 2012[54]**

The Buckinghamshire Picture

In Buckinghamshire in 2014, about 10,500 (10.8%) children under 16 years of age lived in low income families[b], compared with 14.7% in the South East and 20.1% in England. The definition of low income includes both people that are out-of-work and those that are in work but have low earnings. The Income Deprivation Affecting Children Index (IDACI) measures the proportion of all children from birth to 15 years living in income deprived families[c]. Buckinghamshire areas of deprivation based on IDACI are shown in Map 1 on page 17.

9% of babies (540 babies) were born to lone parents in 2015 in Buckinghamshire. From the census in 2011, we know there were 10,500 lone parent households (5.2% of households) in Buckinghamshire. Lone parent households are more common in areas of deprivation, with 8.7% of households in the areas of greatest deprivation in Buckinghamshire (deprivation quintile five), compared with 3.4% in areas of least deprivation (deprivation quintile one). The percentage of households across Buckinghamshire consisting of lone parents with dependent children is shown in Map 2 on page 18.

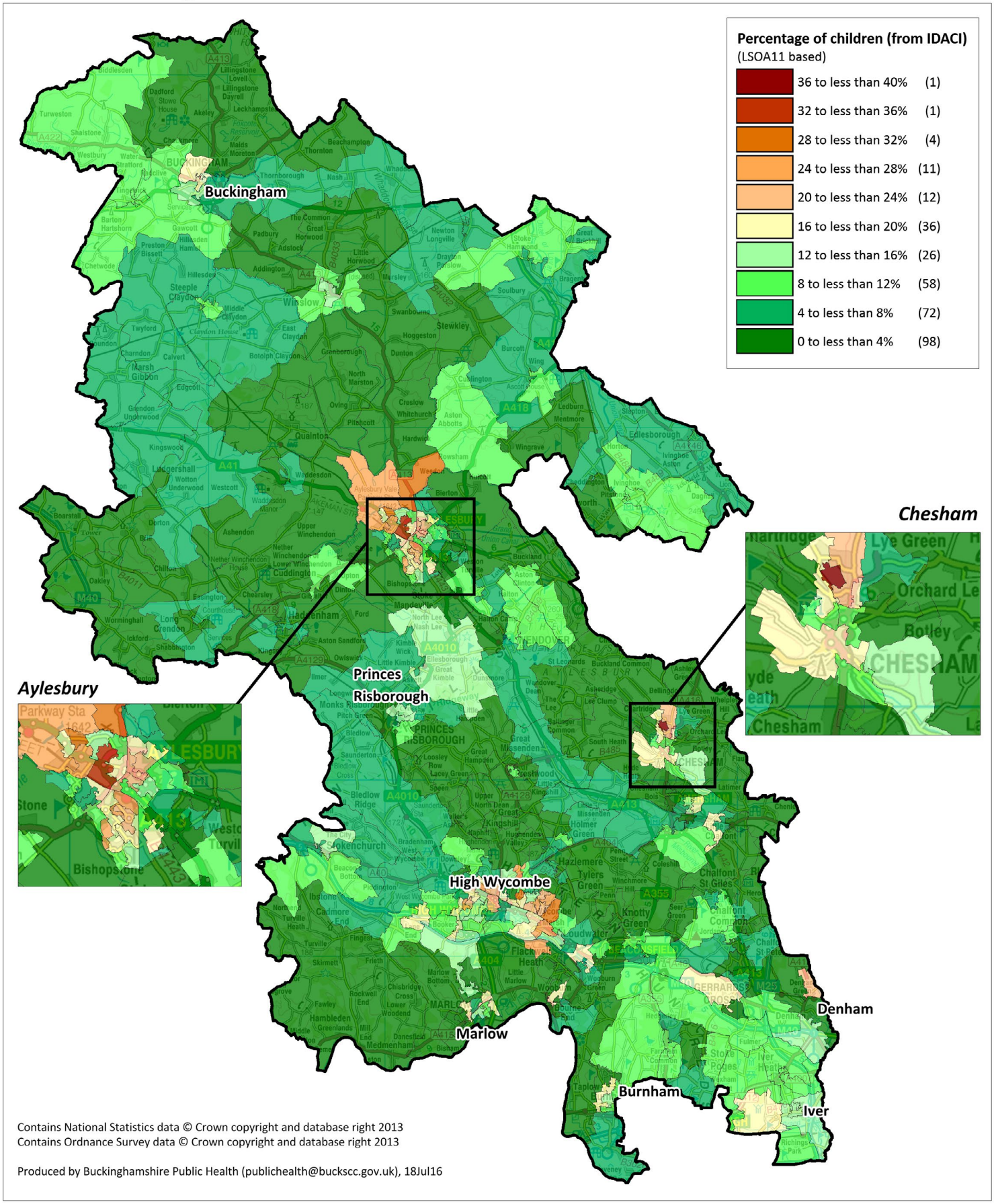
The life expectancy at birth of babies born in the most deprived areas of Buckinghamshire (deprivation quintile five) is 80.0 years, compared to 85.4 years for those born in the least deprived areas (deprivation quintile one)[d]. At ward level the difference is even greater. A baby girl born in Riverside has a life expectancy of 79.2 years whereas a baby girl born in Wingrave has a life expectancy of 94.2 years. A baby boy born in Gatehouse has a life expectancy of 75.0 years, but in Beaconsfield North 89.2 years.

Babies born in the more deprived areas of Buckinghamshire are more likely to be low birthweight and die in the first year of life than the Buckinghamshire average. They are also less likely to show a good level of development by the end of their first year at primary school and be in contact with social services as children in need, on child protection plans or looked after children.

[b] Children living in families in receipt of out of work benefits or tax credits where their reported income is less than 60% of the median income
[c] The word 'family' is used to designate a 'benefit unit', that is the claimant, any partner and any dependent children (those for whom Child Benefit is received).
[d] 2011-15

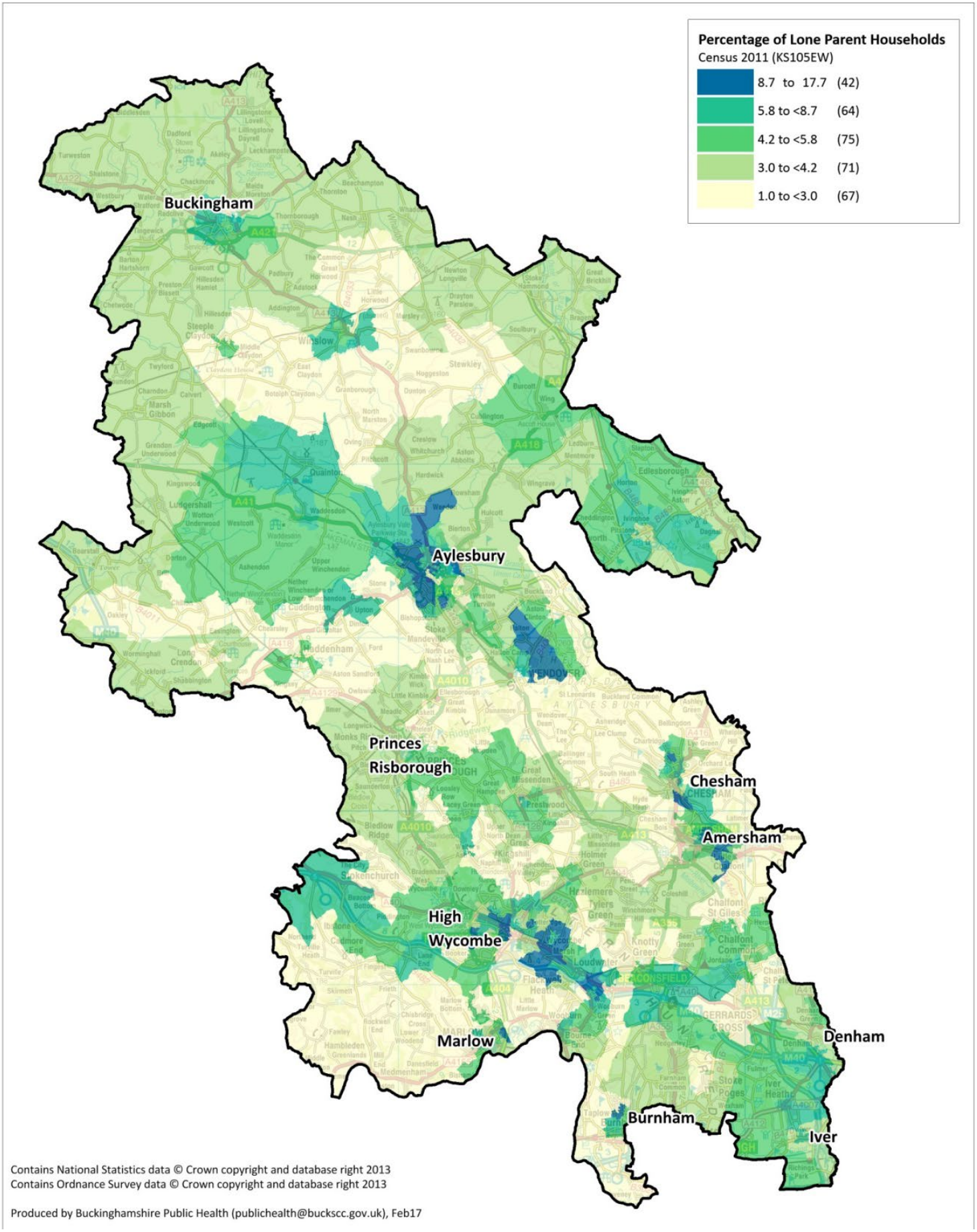
Map 1.

Percentage of children aged 0-15 living in income-deprived households within Buckinghamshire



Map 2.

Percentage of households consisting of lone parents with dependent children Census 2011



Teenage pregnancy

Becoming a parent can be a positive experience for young people, but it also brings many challenges. The UK has the highest rate of teenage pregnancy in Western Europe and almost three quarters of these are unplanned[55].

Teenage parents and their babies are at increased risk of poorer outcomes[56]. Teenage mums are less likely to finish their education and find a good job, and more likely to live in poverty. 1 in 5 girls aged 16 to 18 not in education, employment or training are teenage mothers. Women who were teenage mothers are 22% more likely to be living in poverty and men who were young fathers are twice as likely to be unemployed when they are 30 years of age. Teenage mothers are also more likely to become single parents. 2 in 3 teenage mothers experience relationship breakdown in pregnancy or the 3 years after the birth of their baby. Teenage mothers are 3 times more likely to smoke during pregnancy, are 3 times more likely to experience postnatal depression and have higher rates of poor mental health for up to 3 years after the birth. They are also a third less likely to start breastfeeding and half as likely to be breastfeeding at 6 to 8 weeks than older mothers.

Babies born to teenage mothers have a 13% higher risk of stillbirth, a 56% higher risk of infant mortality and are 3 times more likely to die from SUDI. Children born to teenage mothers are twice as likely to be hospitalised for gastroenteritis or accidental injury and have a 63% higher risk of living in poverty. Children born to teenage mothers are at risk of poorer development. At age five they are four months behind on spatial ability, seven months behind on non-verbal ability, and 11 months behind on verbal ability.

Children of teenage mums are also more likely to become teenage parents themselves. However, it doesn't have to be this way.

Intensive home visiting has been found, in some countries, to improve children's development and support strong secure attachments between mother and baby[57]. The early findings of a recent UK study investigating short term outcomes found that the Family Nurse Partnership programme was more effective at improving intention to breastfeed, levels of social support, quality of partner relationship, general self-efficacy in the mother and language development at 12 and 18 months and cognitive development at 24 months[58]. It was no more effective than usual care in reducing smoking in late pregnancy, improving birth weight, reducing rates of second pregnancies or reducing rates of emergency attendance or hospital admission for the child than routinely available healthcare alone[59].

A further study is planned to follow up these mothers until their child's sixth birthday and will investigate whether the Family Nurse Partnership reduces child maltreatment by measuring Child in Need status, Child Protection registration and referrals to Social Care[60]. Secondary outcomes that will be investigated include child injuries and ingestions, domestic abuse and subsequent pregnancies[61]. It is expected to be published in 2018.

The Buckinghamshire Picture

In Buckinghamshire, the teenage conception rate in young women aged 15 to 17 years has halved (48% reduction) over the last 19 years to 12.8 conceptions per 1,000 young women aged 15 to 17 years (124 conceptions) in 2014. Similarly, the conception rate in young women aged thirteen to fifteen has almost halved (45% reduction) over the last five years to 2.2 per 1,000 girls aged 13 to 15 (19 conceptions) in 2014. 61% of conceptions to girls aged 15 to 17 in Buckinghamshire led to terminations of pregnancy.

In 2015, there were 153 deliveries to young women estimated to be under 20 years at the time of conception (6.5 deliveries per 1,000 females aged 13 to 20 years). Almost half of these deliveries are to young women living in the most deprived areas in Buckinghamshire.

In Buckinghamshire there is a teenage delivery pathway, which ensures additional advice and or support for young mothers. The Buckinghamshire Family Nurse Partnership service provides targeted support to first time young mothers, with 237 young women enrolled into the programme since it started. Despite the well documented national data that babies of teenage mothers have poorer outcomes, on average Buckinghamshire babies in the programme did as well as the Buckinghamshire average.

In the last three years (November 2013 to October 2016), 2.7% of babies born at full-term to mothers supported by the Buckinghamshire Family Nurse Partnership were born at low birthweight, compared with 4.6% nationally. The population rate of low birth weight in Buckinghamshire is 2.5% compared with 2.4% in the South East and 2.9% in England.

Child development scores are assessed against 5 areas of development, from motor skills to communication development. All children assessed at age two against the five domains were within the expected developmental range across virtually all areas (100% for four domains). For social emotional development at 24 months, almost all were within the expected range. Early data comparing these babies' development with the Buckinghamshire average shows that development is similar or better than the Buckinghamshire average.

In Buckinghamshire we need to continue to reduce unplanned teenage pregnancy through better relationships and sex education and improving information and access to effective young-people-friendly sexual health and reproductive health services. When teenage pregnancies do occur we will give the babies of teenage mums the best chance of a good start in life through providing additional support.

Women from minority ethnic groups and recent migrants

Women from certain Asian ethnic groups tend to be at greater risk of having low birthweight babies, which can impact on the children's chance of good health. This may be partly due to their social circumstances if they live in less advantaged areas.

In addition, recent migrants to the UK who don't understand how our health and social care systems work, and mothers who have difficulty reading and speaking English, are at increased risk of complications during their pregnancy and the birth of their children[62]. These women may experience barriers in accessing care and have health problems that remain undiagnosed[63].

In the UK in 2014, Black or Black British babies had an 80% higher risk, and Asian or Asian British babies had a 60% higher risk of dying before, during or shortly after birth[64]. 6% of stillbirths and 28% of neonatal deaths were due to congenital anomalies[65].

Some ethnic groups are at higher risk of some genetic conditions and it is important that there is good access to culturally sensitive information on genetic risk, genetic testing and counselling services to families at higher risk of genetic disorders.

The Buckinghamshire Picture

In 2015, 23% of mothers identified their babies as coming from a non-white ethnic group, comprising 17% from Asian/Asian British, 3% Black/African/Caribbean/Black British, 1% Mixed/multiple ethnic group and 2% from other ethnic groups. In 2015, 26% of all babies were born to mothers born outside the UK. The most common five countries were:

1. Pakistan 6%
2. Poland 3%
3. India 2%
4. South Africa 1%
5. Romania 1%

The Maternity Skilled for Health project is an innovative programme, commissioned by Public Health and delivered by the Healthy Living Centre in Aylesbury. It is a countywide programme for women of child bearing age, whose first language is not English, to help them improve their English and learn about health issues to improve the chances of healthier pregnancies and better health and development for their children.

This programme was piloted with 135 Asian women. Evaluation of this pilot demonstrated the benefits of the project in helping women to engage in their healthcare. It found improvements in the women's language skills, communication with health professionals, health knowledge, confidence and self-efficacy. The programme is delivered within areas of deprivation in Aylesbury, Wycombe and Chesham.

Quotes from women who completed the pilot programme:

I want to thank you for this course. My life has changed, I have changed my diet, I exercise more and I feel really happy. My children and husband are proud of me. Thank you to teacher and Coordinators you always gave lots of support and always make classes very fun to learn. Please never stop with health education

I love this course! Make me so happy! I had four miscarriages before, now I understand more.

This course has already saved people and can save so many still.

Domestic abuse

Domestic abuse can happen to anyone and anyone can commit abuse. It can happen to women and men, in same-sex and heterosexual couples, among all occupational groups. Domestic abuse involves any incident of controlling, coercive or threatening behaviour, not just violence or abuse between partners, and can be psychological, physical, sexual, financial or emotional. Domestic abuse often starts or escalates during pregnancy.

The impact of domestic abuse in pregnancy can be physical, including miscarriage, low birthweight, placental separation, fetal fractures, rupture of uterus, preterm labour, and long lasting physical disability. The impact of domestic abuse can also be psychological, including depression, anxiety and post-traumatic stress disorder[66]. Women who have experienced domestic abuse are 15 times more likely to misuse alcohol, 9 times more likely to misuse drugs, and 5 times more likely to attempt suicide. As well as physical and psychological effects, a woman experiencing domestic abuse may find it difficult to attend her antenatal care appointments, making it even harder to identify the abuse and offer help[67].

The stress experienced by a woman experiencing domestic abuse may have harmful effects on the unborn child and children experiencing domestic abuse grow up with a range of problems, from difficulty sleeping and temper tantrums in younger children, to behavioural problems, substance misuse, eating disorders or self-harm in older children[68]. A study has found that stress from domestic abuse during pregnancy actually results in changes to the DNA of the child[69].

Early identification of women at risk by asking all pregnant women in a safe, confidential environment about domestic abuse, and intervening early can help protect mother and baby and stop it affecting the mother-child relationship, as well as many other benefits[70].

The Buckinghamshire Picture

Nationally, 1 in every 4 women will experience domestic abuse in their lifetime.

In Buckinghamshire from October 2015 to 2016, there were 8,923 reported incidents of domestic abuse.

Aylesbury Women's Aid and Wycombe Women's Aid are commissioned to deliver services for victims of domestic abuse in Bucks. They deliver the following services:

- The **Independent Domestic Violence Advocate (IDVA)** service aims to provide inclusive services that reduce the risk of domestic abuse and promote the safety, choices and welfare of those affected. It also aims to ensure that those who have accompanying issues, e.g. substance misuse, are given access to the specialist support they need.
- **DVA In-Reach Worker** offers support to general practice patients to promote the safety, choices and welfare of those affected by domestic abuse.
- **Refuge** is a safe place where female victims of domestic abuse can stay temporarily if they need to escape an abusive relationship.
- The **Outreach** Service is a free service for victims in Buckinghamshire who, either now or in the past, have been treated badly by an intimate partner or ex-partner or a close family member.
- **Helping Hands** is for children who are not in the refuge, but would benefit from some help. The group is run by Aylesbury Women's Aid and is for children who have witnessed/ experienced domestic violence but who are now living in safe and settled accommodation away from the perpetrator.
- **The Freedom Programme** looks at the way that abusive men behave and what they believe about the roles of men and women in society. The aim of the programme is to help women who have experienced domestic violence make sense of and understand what has happened to them, to recognise potential future abusers and to gain self-esteem and the confidence to improve their lives.
- **Counselling** offers victims a safe space in which to explore their experiences of domestic violence and their feelings about it.

5 Low birth weight and preterm birth

Why it's important

A baby's weight when they are born is often an indicator of their mother's health and the conditions the baby experienced before it is born. It is also often an indicator of potential future health challenges for the baby. While many low birth weight babies (those weighing less than 2.5kg) do not have ongoing problems, others face immediate and lifelong risks to their health and development. Babies who have a very low weight (weighing <1.5kg) at birth have poorer outcomes and 1 in 5 die in their first year of life.

Preterm birth is where the baby is born before the 37th week of pregnancy and is a major cause of disability and infant death in the developed world[71,72]. In the UK, more than 7% of babies are born prematurely each year. Preterm babies are at risk of both short- and long-term health consequences. The severity of these consequences is often linked to how early the baby is born.

Preterm birth, especially before 34 weeks' gestation, accounts for three-quarters of neonatal deaths and one-half of long-term neurological impairment in children[73]. Preterm birth may also be a marker of other problems, including fetal infection or systemic inflammation. Outcomes after preterm birth are influenced by the cause of the preterm birth; maternal and family risk factors; and the environment, including the neonatal intensive care unit, the home and the community[74].

Some babies are born at a low birth weight because they are born too early (at less than 37 weeks gestation), while others are not born prematurely, but still have a low birth weight. It can be difficult to identify a single cause of low birth weight or prematurity, but many of the causes are either preventable or treatable. Causes include an unhealthy lifestyle during pregnancy, such as smoking, drinking alcohol, substance misuse or maternal obesity[75,76,77].

Problems during pregnancy, like intrauterine infection, pre-eclampsia or gestational diabetes can also cause low birth weight and prematurity[78,79,80]. Other factors that contribute include domestic violence as it results in maternal and fetal stress[81].

The Buckinghamshire Picture

In 2015, 453 babies or 7.5% of all babies (live and stillborn) born to mothers living in Buckinghamshire were born at a low birth weight. The proportion of babies born at a low birth weight has not changed significantly over the last nine years, whereas nationally it is decreasing. The proportion of babies born at a low birthweight in Buckinghamshire is similar to the national average. The proportion of babies born at a low birth weight is higher in the areas of greater deprivation (deprivation quintile five) in Buckinghamshire compared to the areas of least deprivation (deprivation quintile one). In the more deprived areas 9.7% of all babies are low birthweight compared to 5.8% of babies in the least deprived fifth of the population.

326 babies or 7.6% of all live births (excluding stillbirths) born to mothers living in Buckinghamshire were born prematurely in 2015. The proportion of babies born prematurely has not changed significantly over the last four years.

Local data confirms that low birth weight and preterm birth are more common among Buckinghamshire mothers who are aged under 20, smoke during pregnancy, are from more socioeconomically deprived areas and non-white ethnic groups. In 2015, 37% of babies born at a low birth weight were from non-white ethnic groups, compared with 26% of all births. 59% of low birth weight babies were white, 28% Asian/Asian British and 5% Black/Black British. 24% of low birth weight babies were twins.

Since September 2015, mothers at-risk of their babies being born prematurely can be referred to a specialist prematurity clinic at Buckinghamshire Healthcare Trust. Just over 150 at-risk pregnant women have been through this clinic between September 2015 and August 2016. A detailed evaluation of this service is in progress. Initial findings show that 4.8% of babies born to mothers receiving specialised care from the prematurity clinic were born at a low birth weight, compared to an average for Buckinghamshire of over 7.7% of all babies born at a low birth weight in 2015.

There were 47 deaths in children aged one year or less during the two year period of 2010-11 in Buckinghamshire[82]. The infant mortality rate in Buckinghamshire is similar to the national average. Prematurity was recorded as the primary cause of death for almost a third (14 cases, 30%) and was second only to congenital abnormalities (18 cases, 38%). More than half of the deaths (51%) were in babies born to mothers living in the most deprived areas (deprivation quintile five) in Buckinghamshire.

6 Maternal and infant mental health and wellbeing

Why it's important

The period of pregnancy and the early years of life are a time of immense importance for the mental health and wellbeing of the mother, baby and the whole family.

Although for most women becoming pregnant and having a baby is one of the happiest times of their lives, it can be a really challenging time too due to the psychological, social and physical demands of pregnancy and a new baby. Women are at greater risk of experiencing poor mental health soon after their baby has been born than at any other time in their lives, with a quarter of women experiencing a mental health problem during pregnancy or within the first year after having a baby[83].

Feeling low in the first weeks after their baby is born, known as 'baby blues', is very common occurring in up to 8 in 10 women[84]. It is thought to be due to the changes in hormones that take place in the woman's body after a baby has been born. Although it can be distressing, 'baby blues' is mild, short-lived and different to postnatal depression and other perinatal mental health problems. However, if these feelings persist, or the mother feels like she is not coping or feeling distant from her baby, or worried about any thoughts or feelings, then she should always talk to a health professional for further advice and support.

The most common perinatal mental health problem is postnatal depression, with rates ranging from 13% in the first few weeks after birth, to 20% of women during the first year after the birth of their child[85]. Around 12% of women experience depression and 13% experience anxiety at some point during pregnancy; many women will experience both[86]. 5 to 8 in every 100 women have a severe depressive illness during pregnancy, and 1 to 2 mothers in every

1,000 experience puerperal or postpartum psychosis (severe mental illness with delusions or hallucinations)[87].

Perinatal mental illness can be debilitating, isolating and often frightening for women, and can have a long-term impact on their self-esteem and relationships with partners and family members. If perinatal mental health problems go untreated they can have a

serious impact on women and their families. However, early detection and management of mental health problems is effective in reducing symptoms, and good screening and referral pathways can improve identification of problems and access to care.

Serious mental illness can be life threatening. Maternity-related deaths are rare and becoming even rarer (8.5 women per 100,000 died during pregnancy or up to six weeks after giving birth or at the end of pregnancy in 2012-14), making it safer than ever to give birth in the UK. However, almost a quarter of women who die between six weeks and one year after pregnancy die from mental-health related causes[88]. 1 in 7 maternal deaths are suicides, making suicide the leading cause of death in pregnant women and those that have recently given birth. Mental ill-health is also associated with maternal death from any cause, with 1 in 5 women dying from any cause having a mental health problem.

Maternal mental illness also has consequences beyond the woman's own health.

During pregnancy, stress and anxiety can affect the developing baby as the stress hormone, cortisol, can pass through the placenta to the baby[89]. This can be associated with low birth weight and preterm birth[90,91].

Perinatal mental illness can also have an adverse impact on the way the mother interacts with and cares for her baby, affecting the child's emotional, social and cognitive development[92]. By the age of four, children whose mother has had prolonged mental health problems are less likely to have good emotional, behavioural and social development, leaving them poorly prepared to start school, which may impact on how well they do at school in the future[93]. Studies have shown that children of mothers who were anxious or depressed in the perinatal period had lower IQs at 11 and 16 years of age (20 points lower for boys), were 12 times more likely to have a statement of special needs in primary school and were more likely to be violent at 11 and 16 years of age[94,95].

Infant mental health is influenced by the mother's wellbeing during pregnancy and the nature of parenting in those early years. Parenting is affected by the mental health and wellbeing of the parents. The children of mothers with mental ill-health are also 5 times more likely to develop mental health problems[96,97].

Childcare social workers estimate that between 50 and 90% of parents on their caseload have mental health or substance misuse problems[98].

Maternal depression and anxiety can contribute to intergenerational transmission of socio-economic disadvantage, making an impact on the child's quality of life and future life prospects, including in the labour market[99].

It is estimated that in the UK, the long-term cost to society of maternal perinatal depression, anxiety and psychosis is about £8.1 billion for each one-year cohort of births, with only about £1.2 billion due to costs to the NHS[101]. Almost three quarters of this cost is due to the adverse effects on the child, rather than the mother[102].

Some women who experience mental illness during pregnancy or after childbirth have no previous history of mental illness and are experiencing it for the first time, while others have persistence, recurrence or deterioration of pre-existing mental illness[103]. Bipolar disorder shows an increased rate of relapse and first presentation in the postnatal period. Women with a pre-existing mental illness are particularly at risk because medication often needs to be changed during pregnancy[104]. Anyone can experience perinatal mental illness, but it is more common in women with a personal or family history of mental illness, a lone parent, teenage parents, or women experiencing relationship problems, low levels of social support, recent adverse or stressful life events, socio-economic disadvantage, early emotional trauma or child abuse, or an unwanted pregnancy[105].

Due to the potential impact of any mental illness and its treatment on the woman and baby, management of mental health problems

during pregnancy and the postnatal period can be complex and can differ from all other times. There are potential risks associated with commencing, taking and stopping medication in pregnancy and whilst breastfeeding. The good news is that effective treatments and psychological interventions exist, and early identification and appropriate management can improve outcomes for mother and baby[106].

Every woman should be able to access evidence-based specialist mental health advice, support and treatment during the perinatal period, comprising:

- Access to mental health advice and support embedded within universal maternity, health visiting and GP services
- Routinely asking about mental health in all health care professionals' consultations with pregnant women and up to 1 year after childbirth
- Rapid access to psychological therapies for all women who will benefit
- Clear pathways including support during and after childbirth, specialist perinatal community teams, parent-infant services, and appropriate access to mother and baby units.

Father's mental health

The mental health and wellbeing of both parents is vital for the health and development of their baby, enabling them to cope with the demands of parenthood and respond to their babies' needs. Postnatal depression affects 10% of new fathers[107] and is also associated with emotional and behavioural problems in their children[108]. It is important that professionals are alert to the importance of the father's health too and are able to offer appropriate support.

The Buckinghamshire Picture

It is estimated that in Buckinghamshire in 2015 out of 6,112 births there were[109]:

- Between 611 and 917 women with mild to moderate depressive illness and anxiety states
- Between 917 and 1,834 women with adjustment disorders and distress
- 183 with post-traumatic stress disorder following delivery
- 207 women with severe mental illness, comprising:
  - 12 women with post-partum psychosis
  - 12 women with chronic serious mental illness
  - 183 women with severe depressive illness.

There were approximately 550 women admitted to hospital 600 times in 2015/16 in Buckinghamshire around the time of pregnancy, where there was also a mental health diagnosis.

Buckinghamshire has made considerable progress in maternal mental health and wellbeing over the past three years and has been recognised for its 'rapid developments and innovation'[110]. Buckinghamshire provides commissioned services for pregnant and postnatal women with mental illness across maternity, health visiting, Improving Access to Psychological Therapies (IAPT) and secondary care mental health services. The universal pathway for perinatal mental health, which was launched in July 2016, complies with all the recommendations set out by NICE in 2014[111]. The pathway supports women and their partners across all areas of need - from mild anxiety and/or depression to severe mental illness – taking into account the needs and preferences of individuals and their families to ensure they can make informed decisions about their care and treatment, and giving families access to a variety of evidence based, tailored services[112]. The Buckinghamshire pathway has been designed to incorporate all potential perinatal mental illness and to clearly signpost primary care practitioners towards appropriate sources of professional advice and referral routes as needed.

In line with NICE guidance, Consultant Psychiatrists with a special interest and expertise in perinatal mental health, manage cases of serious mental illness. They also provide GPs, health and social care professionals and women with information regarding the risks and benefits of medication during pregnancy and when breastfeeding.

A particular early success in Buckinghamshire is the impact of the postnatal well-being groups, a joint initiative between the Health Visiting Service and the Healthy Minds Psychological

The Buckinghamshire Picture - continued

Services. The groups are for women with mild to moderate depression or anxiety and are run in Aylesbury, Wycombe and Chesham. Each group runs for 10 weeks with a crèche and includes an evening session for partners. These were piloted and found to have a positive impact on mothers' mental health and are now rolled out across the county. Analysis of outcomes shows a 62% overall recovery rate for mothers in these groups. This compares well to the national target for IAPT services, which is that 50% of those completing treatment for anxiety or depression will recover. Attendance at the partners' session has been around 60 to 70% and participants found the session helpful.

GPs, midwives and health visitors are uniquely placed to screen for risk factors for mental health problems during the perinatal period. Prompt identification, assessment and treatment with referral to the most appropriate services reduces the impact of the disorders on the mother, her child and family. Health visitors conduct a maternal mood assessment on all new mothers at the six to eight week visit. In the most recent data for 2016, 8% of those receiving a maternal mood assessment were found to be above the Edinburgh Postnatal Depression Scale (EDPS) threshold for moderate depression and these mothers can then receive appropriate support. There is a specialist lead for maternal mental health within the health visiting service and there are champions across the health visiting teams. Regular training updates are provided to ensure consistency and competency in promoting maternal mental health and identifying mental ill-health.

7 Parenting

Why it's important

The quality of parenting is one of the most important factors affecting a child's development, happiness and achievement throughout life.

During the first two years of a baby's life the interactions they have with their parents and the bond and attachment between them, shapes the development of the baby's brain and helps the baby or toddler to learn about and manage their emotions and relationships. This impacts on every aspect of their life into adulthood. Sensitive, warm, and authoritative parenting gives children confidence, helps brain development and learning[113].

This period is also very important for the development of a range of skills including language and cognition. Parents have the biggest influence on their child's early learning. Talking and reading to a baby can help stimulate language skills right from birth. Language skills help children develop a range of cognitive skills that are crucial for their development including working memory and reading skills. Early exposure to language-rich environments and reading schemes at home and in early years' settings enhance language development and this enhances children's ability to do well at school. Indicators of household chaos and disorganisation are related to poorer language skills at three years. Supporting parents to provide a stimulating and supportive home environment is therefore crucial to giving children the best chance of succeeding in school and later life.

Parenting is important in physical health too. Parental feeding practices and promotion of physical activity impact on the child's physical health and development and risk of childhood obesity.

Attachment

When a baby cries or clings to its parent or caregiver it is letting them know that it needs something or is upset. By recognising these cues and responding predictably to what their baby wants and feels, parents provide their baby with reassurance so that baby has the confidence to explore their new world knowing they're safe and protected[114]. This is called sensitive attuned parenting and helps secure attachments form between parents and their baby. This supports brain development and evidence demonstrates that securely attached children function better across a range of areas, including emotional, social and behavioural adjustment, as well as mental health, peer-rated social status and school achievement, in addition to having better physical outcomes[115]. Positive proactive parenting that involves praise, encouragement and affection leads to children with high self-esteem, social and academic competence and protects against later disruptive behaviour and substance misuse.

Unresponsive or erratic parenting can result in attachment difficulties or disorders. Children with attachment disorders find it extremely difficult to form close attachments[116]. Children with attachment difficulties often have disruptive behaviour, difficulty forming relationships with teachers and peers, problems with self-regulation and an unwillingness to take on challenges and to keep trying when things go wrong. This can impact on their success and wellbeing in school. Attachment difficulties are associated with a range of emotional and behavioural problems, such as anxiety, depression, and challenging or aggressive behaviour.

Being a new parent is challenging at the best of times and parenting skills and confidence may be influenced by[117]:

- Economic or social issues, including poverty, parents education and knowledge about parenting
- Social support or social isolation
- Parents own experience of being parented or adverse childhood experiences
- Exposure to domestic abuse
- Alcohol and substance misuse
- Mental health problems
- Poor relationship with their partner

The child's temperament or developmental issues may also make parenting more difficult and parents may need more help to respond appropriately.

The quality of the co-parenting relationship is also important to a child's wellbeing. This relationship is formed as parents negotiate their roles and responsibilities when they become parents and has a greater influence over how well a child develops than the quality of the parents' romantic relationship[118]. How well parents communicate and relate to each other has an effect on their parenting and their child's long-term mental health and future life[119]. Frequent, intense and unresolved arguments between parents have a negative impact on children at whatever age they occur from infancy to adulthood[120]. Early interventions to support healthy relationships for parents improve parenting and help children do well[121,122].

When a young child experiences the average day to day low level stressful events, parental reassurance and support helps them process the event leading to changes in the developing brain that are protective for later life events[123]. However, when a baby or toddler is exposed to early adverse experiences, but doesn't receive reassurance from its parents, this can result

in changes in their brain and nervous system, which alters the way they respond to stress in the future in an unhelpful way, impacting on their development, health and wellbeing across their life[124,125]. This is known as toxic stress and can lead to lower educational attainment, adoption of risky health-related behaviours, and social, emotional and mental health problems[126.] Often the parent is experiencing a range of problems themselves, such as poverty, mental health problems, domestic abuse and substance misuse. Toxic stress can lead to the atypical parent-child interactions seen with attachment difficulties or disorders.

As children grow up, parenting that involves harsh inconsistent discipline, little positive parental involvement with the child and poor monitoring and supervision are linked to antisocial behaviour in children[127]. Research studies show that children who are living in chaotic households (characterised by unpredictable routines, overcrowding, and disorder) are at increased risk of language delay and poor cognitive and social development[128]. In situations where parenting is significantly compromised and risking harm to the child, children may be taken into the care of the local authority. Infants under one year account for up to 13% of child protection registrations in the UK, with neglect (55%) and emotional abuse (17%) accounting for nearly two-thirds of these[129]. In Buckinghamshire, there were 39 infants under one year of age and 110 aged between one and four years on the child protection register on 31st March 2016. 26 infants under one year of age and 67 aged between one and four years were looked after children on 31st March 2016.

Simple things like regular bedtimes are really important. Research shows that lack of sleep in children results in changes to the structure of the brain[130]. Further research is needed to work out the consequences of this. Most toddlers love their parents reading to them and will have a favourite book or two by the time they're eighteen months[131]. Reading to babies and toddlers not only helps develop their language and imagination, but also strengthens the bond between child and parent[132].

Supporting parents with parenting programmes is good for parents' and children's wellbeing and mental health[133,134]. NICE recommend that all parents should be able to access parenting programmes. The healthy child programme recommends a range of evidence based interventions aimed at building resilience in early childhood. There is a range of ways to help parents to provide parenting that supports the best development for children and this should be offered universally. Services should also identify families who need extra support. Evidence-based parenting programmes have been shown to improve parents' ability and emotional and behavioural adjustment in young children. Parenting programmes are most effective when they start during pregnancy or the first two years of a baby's life[135].

For new parents experiencing difficulties, antenatal programmes that focus on the transition to parenthood and aim to alleviate pressures on the couple's relationship are effective in reducing relationship breakdown and help to strengthen parenting roles[136].

NICE recommends that the nature of the mother-baby relationship should be assessed by trained staff after birth and during the early years[137]. Frontline staff in contact with families with young children should discuss any concerns that the woman has about her relationship with her baby and provide information and treatment for any identified mental health problems, referring for specialist help if needed.

Evidence-based programmes that improve parent-child interaction and parenting have been shown to improve attachment, behaviour and cognitive development.

The Buckinghamshire Picture

In Buckinghamshire, antenatal classes are offered to all parents by midwives, with health visitor involvement, across the county to help prepare parents for their new role.

After the baby has been born, health visitors offer parenting advice and support to all new parents and can refer for additional help if necessary.

A new development in Buckinghamshire in 2017/18 is for health visitors to undertake an assessment of social and emotional development when the baby is one year old, in addition to the two years of age assessment. This will provide an important measure of attachment early in a child's life and allow additional support to be provided to families who need it.

Buckinghamshire County Council also provides and commissions a range of evidence based parenting programmes, suitable for the ages of the children and young people involved and the issues to be addressed, which are attended by approximately 400 families per year.

The Buckinghamshire Picture - continued

ReConnect

The ReConnect service was initially set up in September 2013 as a pilot project to address the needs of vulnerable children in Buckinghamshire under the age of two years who were considered at risk of developing a disorganised attachment. A disorganised attachment is associated with the poorest outcomes for children that include an increased risk of development of mental health problems, conduct problems, substance misuse and poor academic attainment. In turn, research has found that the cycle is repeated when that child grows up and becomes a parent and repeats the same patterns of neglectful parenting that they experienced as a child. Children who develop a disorganised attachment have experienced frightening or frightened behaviour from their parents. This can include abusive behaviour from their parent in which the child experiences direct fear. Or it may include cases in which a parent has a significant mental health problem, and as such may fail to notice their child's attachment cues and instead becomes emotionally detached from their child.

ReConnect offers early intervention to parents and their children considered high risk of developing a disorganised attachment. These children are known to social care and are either on a child protection plan or in pre-proceedings. The children in these families have experienced significant neglect or abuse and without this early intervention are highly likely to be permanently removed from their parent's care.

ReConnect offers intensive therapy to parents referred into the service. Parents referred into the service often have experienced neglectful childhoods or past trauma in their background history. They can present with mental health problems and often have difficulties in interpersonal relationships, with several families experiencing domestic abuse. In addition, the service offers Video Interaction Guidance (VIG), a video feedback programme and an intervention recommended by NICE for parents of children at risk of attachment difficulties.

Independent evaluation of the ReConnect service in 2015 found significant improvements in a parent's ability to respond sensitively to their child. In addition, they found that parents reported increased sense of competence in their ability to parent, they were less stressed as parents, had fewer mental health problems and were better able to think about their child's needs above their own. The research team also carried out some qualitative analysis based on their telephone interviews with service-users. Key themes that emerged from this research included parents reporting that the service was "a life-changing experience" as it helped change their confidence, attachment relationship with their child, their ability to parent and capacity to trust others. Many parents interviewed said that the service should be offered to all parents and not just parents known to social care.

Since its inception, ReConnect has supported over 85 parents in the service with three-quarters of parents successfully retaining care of their child. The average length of treatment for a parent in the service is 15 months, but some parents are seen for longer intervention of two years or more.

The ReConnect service was awarded the Analeaf Award for "Best Infant Mental Health Service" at the inaugural Infant Mental Health Awards in June 2016 and been highly commended by the Positive Practice in Mental Health Awards.

8 Breast feeding

Why it's important

Breastfeeding has many benefits for both mother and child, including[138]:

- Breast milk is the best nourishment for babies aged up to six months and continues to play an important role alongside other foods after this. Current UK policy is to promote exclusive breastfeeding for the first six months
- Breastfeeding can promote emotional attachment between mother and baby and may help protect the child from maternal neglect[139]
- Breastfed infants have a reduced risk of respiratory infections, gastroenteritis, ear infections, allergic disease and Sudden Infant Death Syndrome
- Breastfed infants may have better neurological development and be at lower risk of tooth decay and cardiovascular disease in later life
- Breastfeeding can be protective against obesity, particularly in those who are genetically predisposed; breastfeeding for three months in the first year of a baby's life reduces the risk of obesity by 7%
- Women who breastfeed are at lower risk of breast cancer, ovarian cancer and hip fractures from reduced bone density
- Mothers who breastfeed benefit from a faster return to pre-pregnancy weight.

Many mothers find it can be challenging when they first start breastfeeding. Midwives and health visitors promote breastfeeding and provide crucial support to help breastfeeding mothers in the first few days and the weeks and months following the birth. Health visitors can help mothers to continue breastfeeding and can support those mothers who are unable or do not wish to continue to breastfeed, whilst continuing to promote bonding and secure attachments between mother and baby[140].

The UK has some of the lowest breastfeeding rates in the world with 81% of mums having tried breastfeeding at some point, but only 34% still breastfeeding at six months and 0.5% breastfeeding after one year[141]. This 12 month breastfeeding rate is the lowest in the whole world.

The worldwide UNICEF Baby Friendly Initiative promotes breastfeeding through a whole system approach[142] and has been shown to be the most effective programme for improving breastfeeding rates[143]. It is an accreditation programme of Baby Friendly standards for public services, such as maternity, neonatal, health visiting and early years services. In the UK, 64% of maternity services and 63% of health visiting services have full Baby Friendly accreditation, and 91% and 85% respectively are working towards Baby Friendly accreditation[144].

The Buckinghamshire Picture

In Buckinghamshire, 76% of mothers (4,472 women) started breastfeeding at delivery in 2014/15, with only 56% of babies' breastfed at six to eight weeks in 2012/13. More recent data on breastfeeding status at six to eight weeks does not pass stage three validation criteria so cannot be benchmarked. The most recent unvalidated local data shows that levels are comparable to 2012/13 with 50% of babies being totally and or partially breastfed at six to eight weeks (Q2 2016/17). Breastfeeding rates tend to be higher in older mothers. In Buckinghamshire, around half of teenage mothers initiated breastfeeding, compared with over three-quarters of those aged over 30.

The health visiting service in Buckinghamshire is working towards Baby Friendly status. They have been awarded the first of three stages of Baby Friendly accreditation, and are now working towards stage two. Buckinghamshire Healthcare Trust maternity services are also working towards Baby Friendly status.

Within the health visiting service there are trained breastfeeding champions in each team across Buckinghamshire and training and education on breastfeeding and building a strong mother-child relationship whatever mode of infant feeding for all staff. There is also a good network of professionally led breastfeeding clinics and support across Buckinghamshire, often sited in Children's Centres. For more information see www.buckshealthcare.nhs.uk/birthchoices/infant-feeding-support.htm

9 Access to services

A range of services have a vital role to play in helping women have a healthy pregnancy and a healthy baby.

This includes services that help women stay healthy before they become pregnant, and sexual health and contraception services that support good sexual health, the ability to plan pregnancies and how to avoid unintended pregnancy.

Early access to high quality maternity services help support a healthy pregnancy and reduce the risk of complications and poor outcomes for mother or baby. Universal support in the early years from health visitors and other professionals help ensure that children have the best possible start in life and reach their potential and that families can thrive. This section highlights a few of the services supporting a healthy pregnancy, healthy baby and healthy parents.

Contraceptive services and planning a pregnancy
Why it's important

Planning a pregnancy can help increase a woman's chances of becoming pregnant and avoiding harm to their baby in early pregnancy. However, in the UK, it is estimated that 1 in 3 pregnancies may be unplanned[145], with the result that many women may not change any unhealthy behaviours before they became pregnant. A short inter-pregnancy interval of less than 12 months increases the risk of complications, including preterm birth, low birthweight, stillbirth and neonatal death[146]. Currently, the World Health Organization (WHO) recommends a 24 month inter-pregnancy interval after childbirth[147]. Having a baby is a life changing event, which can be more challenging with unplanned pregnancies. Women who book later for their antenatal care, are more likely to experience relationship breakdown and are at greater risk of complications, such as babies born at low birth weight and worse perinatal mental health than those with planned pregnancies[148,149,150,151,152].

Unplanned pregnancies can happen to anyone, but are more common in women who start having sex at an early age (before 16 years old), who misuse drugs and alcohol, or who have mental health problems, such as depression[153]. Younger adults are more likely to choose contraception, such as condoms or the contraceptive pill, which depend on people remembering to use or take them.

Condoms are 98% effective if used correctly, resulting in, on average, 2 women in 100 getting pregnant each year[154]. By contrast, long acting reversible contraception (known as LARC), does not depend on people remembering to use or take them and is more effective[155]. Coils (intrauterine devices or IUDs), hormonal coils (intrauterine systems or IUSs), contraceptive injections, and implants are all types of LARC.

It is possible to reduce unplanned conceptions through better relationship and sex education in schools before children are sexually active, the promotion of emotional resilience in children and adults, which promotes self-confidence and empowers young people to make informed relationship decisions, and the provision of long acting contraception and good family planning. The Faculty of Sexual and Reproductive Healthcare of the Royal College of Obstetricians and Gynaecologists have recently published new guidelines on contraception after pregnancy[156]. The high percentage of unplanned pregnancies highlights the importance of keeping all women as healthy as possible to give mother and baby the best chance of a healthy pregnancy. This would be through helping women to maintain a healthy weight, stop smoking, drink safe levels of alcohol, be physically active, and have good sexual health and mental health.

The Buckinghamshire Picture

Contraception

In 2014, 3,733 women were prescribed LARC (implants, IUS or IUD) by their GP, a rate of 39.4 per 1,000 women aged 15 to 44 years in Buckinghamshire. This is statistically significantly higher than the England rate of 32.3 per 1,000 and statistically similar to the South East rate of 40.1 per 1,000. More women are using LARC in Buckinghamshire than previously, but 65.0 per 1,000 women aged 15 to 44 years were prescribed LARC by their GP in Cornwall (the highest rate in England), which shows how much more we can do in Buckinghamshire.

Public health in schools

Most schools and academies in Buckinghamshire teach Personal, Social and Health Education (PSHE) and appoint a PSHE lead. As PHSE is not currently a statutory requirement, each school currently has its own approach. However on 1st March 2017, the government announced their intention to make PSHE a statutory requirement.

The Public Health in Schools web pages have information on what resources are available in Buckinghamshire relating to healthy behaviours, including emotional resilience, mental health promotion and sexual health.

Public Health commissions training opportunities for school staff to deliver evidence-based resilience programmes. These programmes aim to support children and young people to develop coping skills and improve their social and emotional wellbeing.

We aim to provide comprehensive sex and relationship education and contraceptive services for young people in Buckinghamshire. As part of the Buckinghamshire Sexual Health and Wellbeing (bSHaW) service, Public Health commissions training to equip teachers and others working in schools with the knowledge, skills and tools to develop resilience, respect and to promote consensual healthy and safe sexual relationships. A one to one early intervention education service is available for vulnerable young people and adults to prevent them engaging in harmful relationships or sexual behaviours and to build a positive image of themselves.

10 Antenatal care

Why it's important

Women book into antenatal care at the start of their pregnancy and first see the midwife between nine to 12 weeks into pregnancy to help give themselves and their baby the best chance of a healthy pregnancy. This enables early identification and appropriate response to any factors that may impact on pregnancy and wellbeing, and opportunity to screen for a variety of conditions before 21 weeks of pregnancy.

Antenatal care provides crucial support for women and their partners throughout pregnancy. Through detailed history taking, risk assessment and antenatal screening women at high risk who may require additional support are identified. Many of the screening tests need to be done early in pregnancy, which is another reason why early booking is so important.

Antenatal care should be woman-centred and easy to access. It supports women to make informed choices about their care based on their individual needs[157].

As well as giving advice and information, the health professional will assess factors that could affect the pregnancy, including:

- Their weight and body mass index (BMI)
- Risk factors for a condition called pre-eclampsia, including a BMI above 30kg/m^2
- Risk factors for diabetes in pregnancy, such as BMI above 30kg/m^2, a previous baby weighing more than 4.5kg, previous history of diabetes in pregnancy, family history of diabetes and family origin (Asian, Chinese, African-Caribbean or Middle Eastern)

Antenatal and newborn screening aims to identify a range of conditions during pregnancy and the newborn period, which are amenable to different types of interventions ranging from providing parents with information to helping them make informed choices to identifying the need for specific treatments. It includes screening for:

- Blood conditions, such as anaemia, rhesus D status, sickle cell diseases and thalassaemias
- Down's syndrome
- Infections
- Structural anomalies

The Buckinghamshire Picture

Almost three quarters of Buckinghamshire mothers deliver their babies at Buckinghamshire Healthcare Trust[f]. In 2013, 14% of women booked late into antenatal care with Buckinghamshire Healthcare Trust. Delayed access to antenatal care (late booking) is a significant risk factor for maternal death, as well as fetal and infant death and illness[158,159]. In Buckinghamshire, late booking is more common among women under 20 years of age and women from ethnic groups other than White British[160].

It is estimated that approximately 750 to 1,500 pregnancies in Buckinghamshire end in miscarriage before the 13th week of pregnancy. In 2013-15, there were 4.8 stillbirths per 1,000 births, which is not significantly different to the rates in the South East and England (4.3 and 4.6 per 1,000 births respectively).

[f] 2014

Early Pregnancy Units

Early pregnancy units at Stoke Mandeville Hospital and Wycombe General Hospital provide an outpatient service for women with complications in early pregnancy. Just over 2,000 women were seen by the Buckinghamshire early pregnancy units in 2015.

Baby Buddy App

The local NHS has commissioned the charity Best Beginnings to work with local health professionals to offer the free Baby Buddy app to local parents. Baby Buddy is an award-winning mobile phone app for parents-to-be and new parents that guides them through pregnancy and the first six months of their baby's life.

The Buckinghamshire Picture - continued

The Healthy Child Programme

The Healthy Child Programme is the core public health service for children and families. It draws on evidence on delivering good health, wellbeing and resilience for every child and covers children from birth to 19 years. It is a national universal programme and the early years component sets out the schedule of services from 28 weeks of pregnancy through to age five, with additional services for families needing extra support. The programme comprises health promotion, child health surveillance and screening, including immunisations, health and development reviews and advice and support to parents. It is led by health visitors in collaboration with other professionals.

Health visitors ensure that babies, young children and their families receive early help and support to stop problems developing and to build firm foundations that maximise the chances of experiencing good health and wellbeing throughout life. Health visitors can help support more relaxed mothering and improve the relationship between mother and baby. They identify early signs of postnatal depression and ensure mothers' mental health is supported. They also help promote good parenting skills and child development.

There are six high impact areas where health visitors make a critical difference to children's and their families' health and wellbeing.

These are:

1. Transition to parenthood and parenting skills
2. Maternal mental health
3. Breastfeeding
4. Healthy weight, healthy nutrition and physical activity
5. Managing minor illness and reducing accidents
6. Reviewing development of the child at two years and supporting children to be ready for school

Further detail on the six high impact areas is set out in the joint LGA/Department of Health and Public Health England produced guidance.

In Buckinghamshire the health visiting service is a universal service for the 32,000 children under five years old living in Buckinghamshire. The service offers a series of mandated visits to babies and their families within two weeks of birth, at six to eight weeks post-birth, at one year and 2.5 years. The mandated visits check the baby's and mother's health, assess the child's development and offer advice and support to parents on a wide range of issues. The service offers drop-in clinics and organises further visits and interventions in response to identified need. More than 20,000 mandated health reviews were conducted in 2015/16.

Summary

This report has highlighted the importance of the earliest years of a child's life to their future health and happiness. This starts even before a woman becomes pregnant so we need to ensure all women in Buckinghamshire are as healthy as possible before they become pregnant and can stay healthy during pregnancy.

The very first weeks and months after birth are of vital importance to a baby's physical and mental development and future health, happiness and success in life. These are also critical times for the physical and mental health of the parents and their relationship.

Warm and sensitive parenting is one of the most important things to get right from the very beginning in a child's life. This helps the baby develop well, to develop a good bond with their parents, and to be confident, happy and ready to learn. We need to support parents in this very important role by ensuring they have access to the right information, advice and support. We need to ensure we continue to identify and offer early support for mothers experiencing depression or anxiety and their partners. We also need to identify and offer support at the earliest opportunity where problems such as domestic violence or substance misuse make it difficult for parents to do their best.

As this report has highlighted, many of the factors that impact on the chance of a healthy pregnancy or early childhood cluster together. For example, women living in poorer social circumstances may have poorer mental health, be less likely to give up smoking in pregnancy and have poorer nutrition and more difficulty attending antenatal appointments. All service providers need to be aware that key risk factors cluster together and ensure they are identifying all the factors that need to be addressed. Services should then take a holistic and multifaceted approach to supporting these women.

Buckinghamshire County Council, the District Councils and NHS organisations in Buckinghamshire are all members of the Buckinghamshire Health and Wellbeing Board and are committed to giving every child in Buckinghamshire the best start in life, as set out in Buckinghamshire Joint Health and Wellbeing Strategy. In order to do this we need to work together with individuals, communities and partners to improve outcomes for babies, their mothers and families.

The role of health services is clear in this report, but success depends on the contribution of all partners beyond the NHS. Whether we have a role in ensuring that people are living in good quality housing, or that the environments we live in support healthy lifestyles, or that children's education helps them make the right choices, or making sure all our frontline staff are trained to recognise signs of mental health problems and respond appropriately, we can all make a vital contribution.

There is a role, of course, for individuals and we need to ensure that people are provided with the right information, skills and support to make the best choices and look after their health and that of their baby. The choices people make and their ability to give children the best start in life also depend on their social context. We need to be aware of this and ensure that in improving outcomes for our babies, and the future generation of Buckinghamshire residents, that no babies and families get left behind.

Recommendations

1. Healthcare professionals in contact with pregnant women or new mothers should assess all the factors that could impact on the mother's, baby's and family's health and offer advice, support and referral to appropriate services. This includes lifestyle factors such as smoking, alcohol consumption, drug use, weight and healthy eating as well as mental health, exposure to domestic violence and other social factors. There is significant scope to increase referrals to support services to improve outcomes for babies, mothers and families.

2. Buckinghamshire County Council and partners should consider whether there is a need to develop and implement a new comprehensive strategy to support parents in Buckinghamshire.

3. All professionals in contact with pregnant women and families with young children should encourage parents to access universal parenting advice via the red book, national start4life website, Baby Buddy app and the Buckinghamshire Family Information Service.

4. Commissioners and providers of maternity, early years, mental health and substance misuse services should enhance the data collected on the physical and mental health of mothers and babies, the prevalence of risk factors and referral to and outcomes of services. This should enable us to monitor progress and evaluate the impact of our services. Key data should be reported annually to the Health and Wellbeing Board.

5. Buckinghamshire County Council should work closely with schools to explore how the new compulsory PSHE can prepare young people for a healthy and happy life and addresses emotional resilience, healthy relationships, sexual health and healthy lifestyles. One of the future benefits of this should be healthier parents and babies and healthy, planned pregnancies.

6. Partners should consider how they can contribute to improving outcomes for babies, mothers and families in Buckinghamshire.

For mothers in Buckinghamshire:

A woman's health is essential for the health of her baby. Pregnancy is often a time when women start taking better care of themselves, and by following a few simple guidelines they have the greatest chance of a problem free pregnancy and a healthy baby.

Before pregnancy

- ✓ Plan for pregnancy and avoid unplanned pregnancies with effective contraception
- ✓ Adopt a healthy lifestyle before getting pregnant
- ✓ Anyone with a long term condition should seek advice from a health professional before getting pregnant
- ✓ Take folic acid supplements
- ✓ Seek help early for alcohol or drug use

During pregnancy and after your baby is born

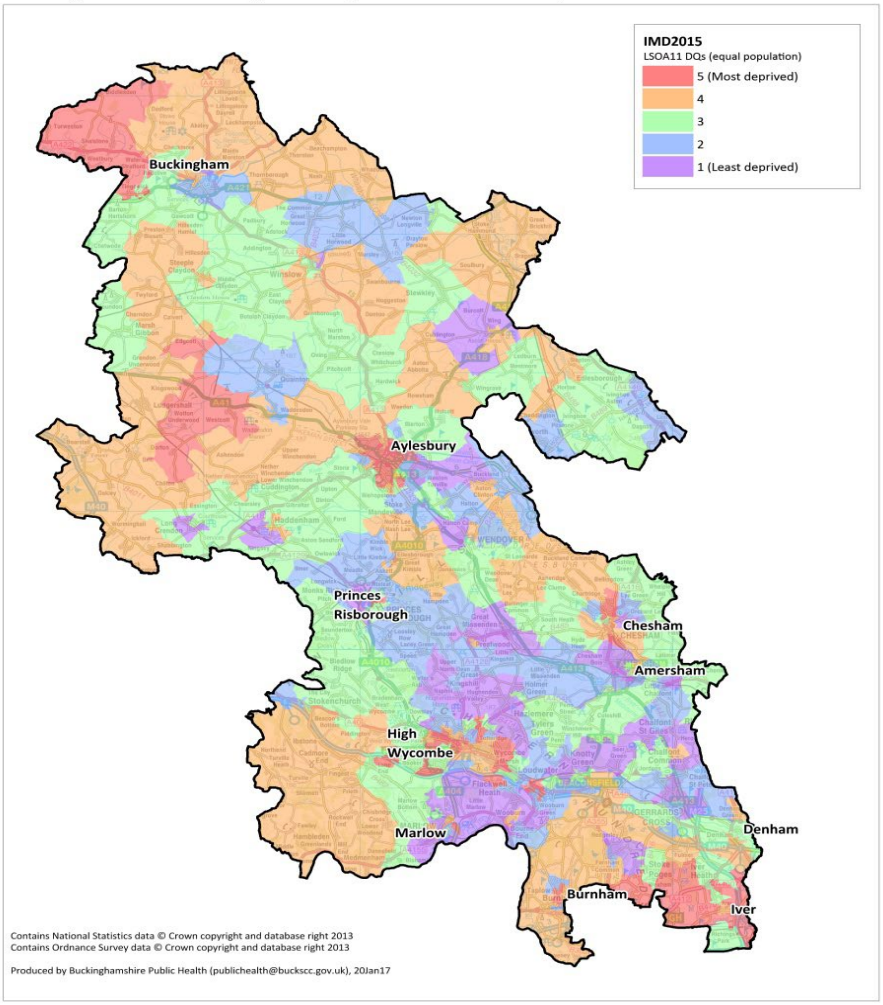
- ✓ Book early into antenatal care and attend all of the appointments
- ✓ Eat balanced healthy meals, and stay active to maintain a healthy weight
- ✓ Have a smoke-free pregnancy by stopping smoking and making sure your partner and other household members stop smoking too
- ✓ Have an alcohol-free and drug-free pregnancy
- ✓ Seek help for domestic abuse
- ✓ Get the flu jab - as flu can have more serious consequences in pregnant women
- ✓ Sign up to Start4Life and attend antenatal classes
- ✓ Talk to a health professional about any thoughts or feelings you are worried about, such as feeling like you're a bad mother, you're not coping or feeling distant from your baby
- ✓ Breastfeeding your baby and asking health professionals for help if it isn't working

Maternity Data Supplement

1. Deprivation and deprivation quintiles in Buckinghamshire

Figure 1 shows the Index of Multiple Deprivation in Buckinghamshire. Areas around Aylesbury, Chesham and High Wycombe have higher values of deprivation than the Buckingham average. Five quintiles each containing approximately 20% of the population are used to analyse health inequalities. Deprivation Quintile 1, or DQ1, contains the fifth of the population who live in the least-deprived areas; DQ5 contain the fifth of the population living in the most-deprived areas.

Buckinghamshire County, showing LSOA11 IMD2015 quintiles



Source: Department for Communities and Local Government (DCLG) English indices of deprivation 2015.

Figure 1. Deprivation quintiles in Buckinghamshire, 2015.

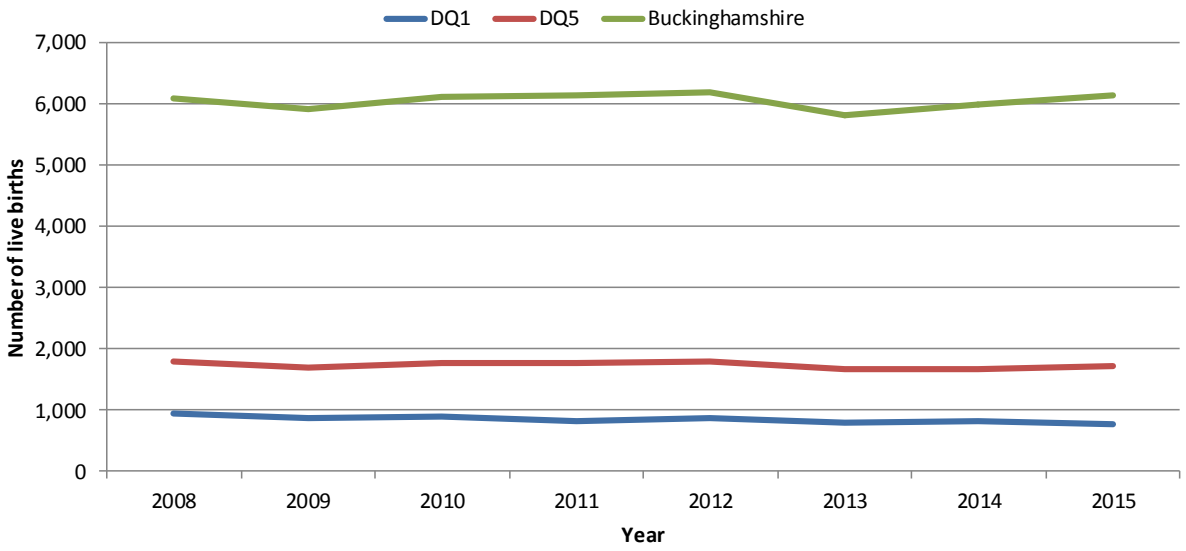
2. Live births

There were 6,140 live births in Buckinghamshire in 2015, see Table 1. Figure 2 shows the number of live births per year from 2008 to 2015. Numbers of live births are approximately constant, with approximately twice as many births in DQ5 (most deprived 20% of the population) compared to DQ1 (least deprived 20% of the population). The ratio of the number of live births in DQ5 to DQ1 ranges from 1.9 in 2008 to 2.2 in 2015.

Deprivation quintile	Year							
	2008	2009	2010	2011	2012	2013	2014	2015
DQ1	951	862	894	825	856	793	812	774
DQ2	1,043	1,052	1,092	1,123	1,115	996	998	1,161
DQ3	1,185	1,120	1,145	1,136	1,113	1,117	1,167	1,100
DQ4	1,109	1,175	1,208	1,292	1,319	1,249	1,340	1,387
DQ5	1,789	1,698	1,764	1,757	1,792	1,667	1,672	1,718
Bucking-hamshire	6,077	5,907	6,103	6,133	6,195	5,822	5,989	6,140

Source: Office for National Statistics Annual Public Health Birth Files.

Table 1. Number of live births by mother's usual place of residence (deprivation quintile) in Buckinghamshire, 2008-15.



Source: Office for National Statistics Annual Public Health Birth Files.

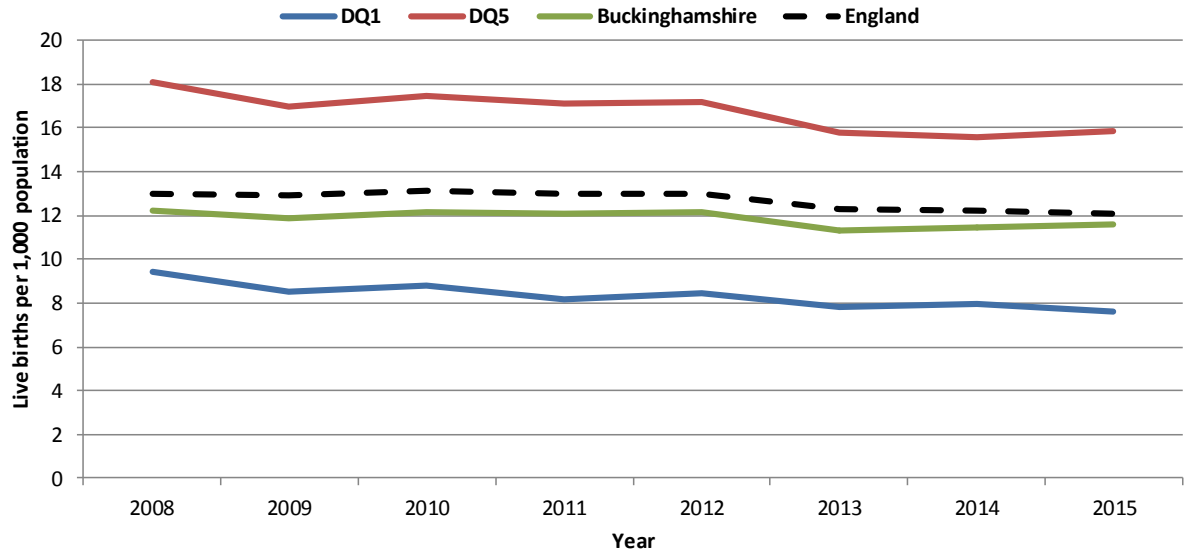
Figure 2. Number of live births by mother's usual place of residence (DQ1 and DQ5) in Buckinghamshire, 2008-15.

The **crude birth rate** is the annual number of live births per 1,000 population, and is lower in Buckinghamshire than in England, see Table 2. Figure 3 shows the crude birth rate from 2008 to 2015. Crude birth rates in DQ1, DQ5 and Buckinghamshire are decreasing significantly each year.

Deprivation quintile	Year							
	2008	2009	2010	2011	2012	2013	2014	2015
DQ1	9.4	8.5	8.8	8.1	8.4	7.8	8.0	7.6
DQ2	10.5	10.5	10.9	11.1	11.0	9.8	9.7	11.1
DQ3	11.9	11.2	11.4	11.3	10.9	10.9	11.3	10.6
DQ4	11.5	12.0	12.2	12.8	12.9	12.0	12.6	12.6
DQ5	18.1	17.0	17.4	17.1	17.2	15.8	15.6	15.8
Buckingham-shire	12.2	11.8	12.1	12.1	12.1	11.3	11.5	11.6
England	13.0	12.9	13.1	13.0	13.0	12.3	12.2	12.1

Source: Office for National Statistics Annual Public Health Birth Files.

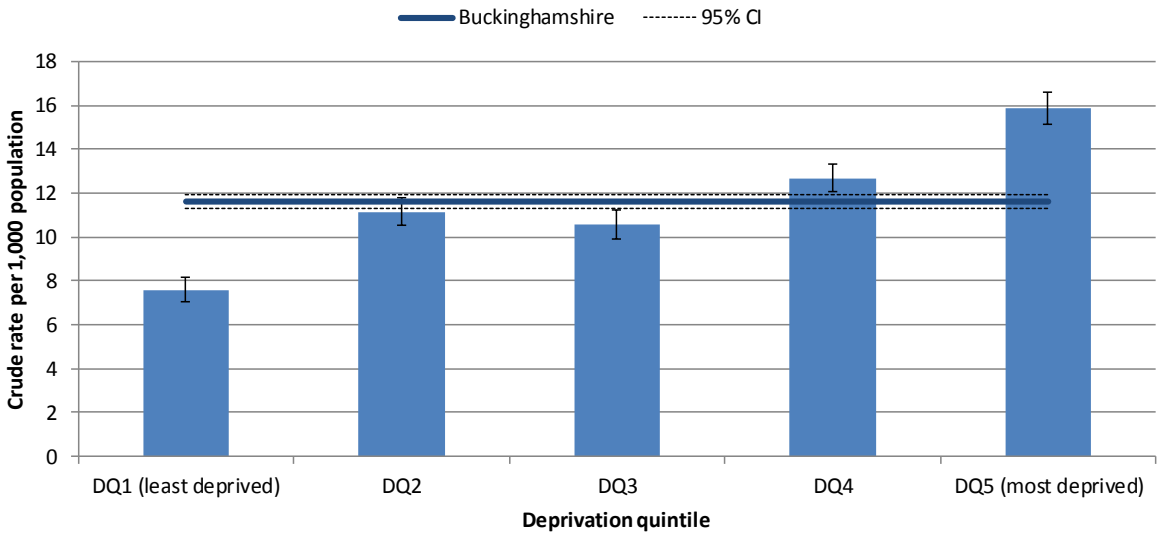
Table 2. Crude birth rate by mother's usual place of residence (deprivation quintile) in Buckingham-shire, 2008-15.



Source: Office for National Statistics Annual Public Health Birth Files.

Figure 3. Crude birth rate by mother's usual place of residence (DQ1 and DQ5) in Buckinghamshire, 2008-15.

The crude birth rate is higher in more deprived areas, see Figure 4. There is a significant trend. Table 3 shows the proportion of women who are of childbearing age (15-49 years) in each deprivation quintile. There is a significant trend.



Source: Office for National Statistics Annual Public Health Birth Files.

Figure 4. Crude birth rate by mother's usual place of residence (deprivation quintile) in Buckinghamshire, 2015.

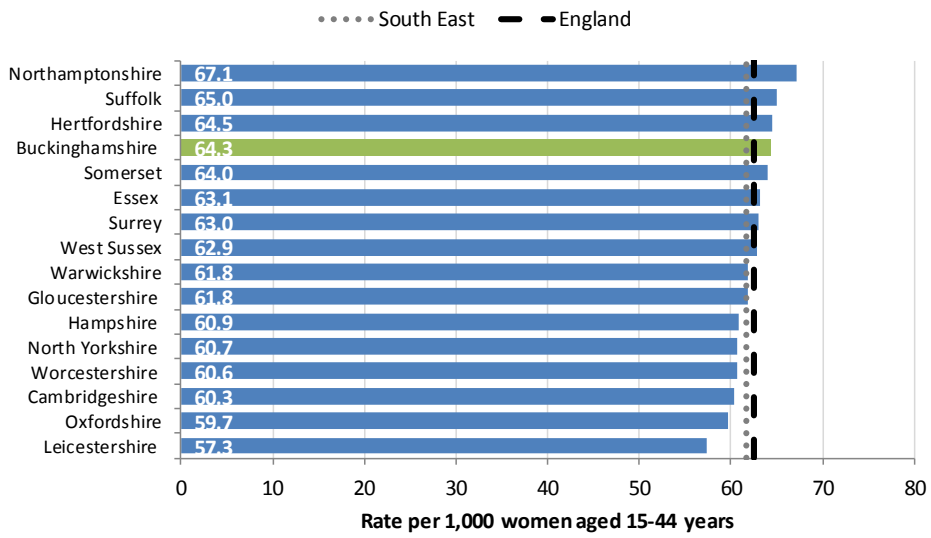
Deprivation quintile	Females 15-44 years	All females	%
DQ1	14,630	52,421	27.9%
DQ2	18,302	54,033	33.9%
DQ3	18,001	53,325	33.8%
DQ4	21,587	56,467	38.2%
DQ5	22,916	53,061	43.2%
Buckinghamshire	95,436	269,307	35.4%

Source: Office for National Statistics, Mid-2015 Population Estimates for Lower Layer Super Output Areas in England and Wales by Single Year of Age and Sex.

Table 3. Proportion of women of childbearing age by deprivation quintile, 2015.

The **general fertility rate** is the annual number of live births per 1,000 women of childbearing age (ages 15 to 44 years).

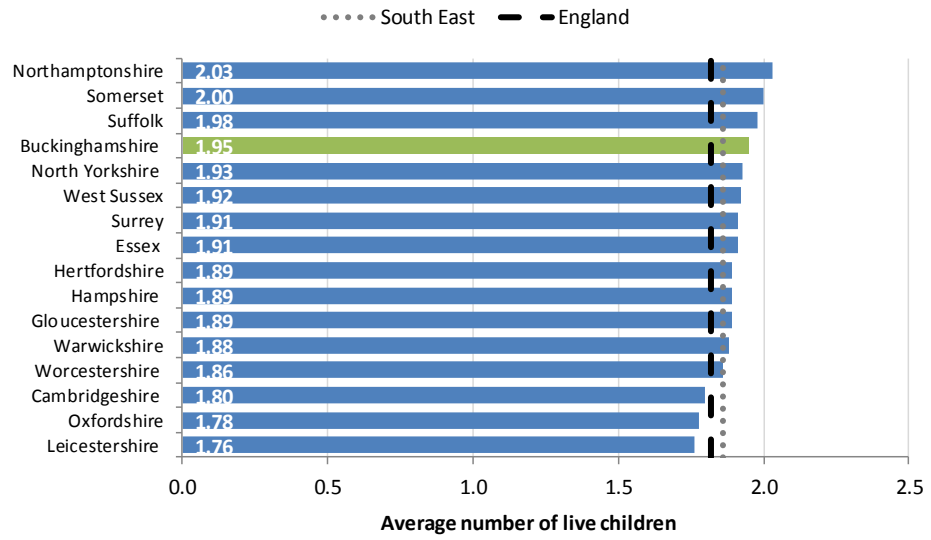
Comparison is made against a set of similar local authorities identified by the Chartered Institute of Public Finance and Accountancy (CIPFA). These are referred to as CIPFA peers. Among Buckinghamshire's CIPFA peers, Buckinghamshire had the 4th highest general fertility rate in 2015, see Figure 5.



Source: Office for National Statistics Birth Summary Tables, 2015.

Figure 5. General fertility rate among Buckinghamshire's CIPFA peers, 2015.

The **total fertility rate** is the average number of children a woman would have in her lifetime In Buckinghamshire it is just under 2 children each at 1.95 (the technical definition is the average number of live children that a group of women would bear if they experienced the age-specific fertility rates of the calendar year in question throughout their childbearing lifespan). As with the general fertility rate, Buckinghamshire's total fertility rate in 2015 was high among its CIPFA peers, see Figure 6.

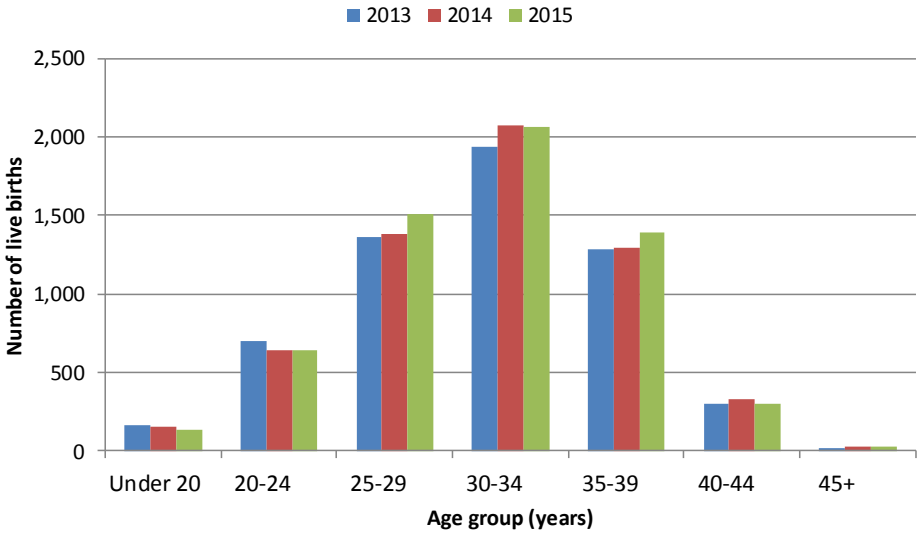


Source: Office for National Statistics Birth Summary Tables, 2015.

Figure 6. Total fertility rate among Buckinghamshire's CIPFA peers, 2015.

3. Mother's age at birth of child

Figure 7 shows that, for all maternities, the commonest age of women giving birth is between 30 and 34 years of age, and that there are more mothers aged 35+ years than under 25 years of age.



Source: Office for National Statistics, Vital Statistics Table VS2.

Figure 7. Age of mothers in Buckinghamshire, 2013-15.

4. Ethnicity

Table 4 shows the ethnicity of mothers admitted to maternity services in hospitals in 2015. Home births and births in NHS Foundation Trusts that do not submit data to the Birth Episode Commissioning Data Set are excluded. Nearly three quarters (73.9%) of hospital admissions to deliver a baby are to White mothers. Those who identify themselves as Asian/Asian British form the second largest proportion (17.1%).

Ethnic group	Num-ber	%
White	3,168	73.9%
Mixed/multiple ethnic groups	63	1.5%
Asia/Asian British	732	17.1%
Black/African/Caribbean/Black British	118	2.8%
Other	71	1.7%
Not known/Not stated	132	3.1%
Total	4,284	100%

Source: SUS Admitted Patient Care (APC) Minimum Data Set (MDS).

Table 4. Ethnicity of mother in hospital admissions to deliver a baby, 2015.

5. Mother's place of birth

Table 5 shows the place of birth for mothers in Buckinghamshire in 2013-15. Approximately a quarter of mothers are born outside the UK.

Year	Born outside UK	Born in UK	Total
2013	1,452 (24.9%)	4,370 (75.1%)	5,822 (100%)
2014	1,504 (25.1%)	4,485 (74.9%)	5,989 (100%)
2015	1,608 (26.2%)	4,532 (73.8%)	6,140 (100%)

Source: Office for National Statistics Annual Public Health Birth Files.

Table 5. Mother's place of birth, 2013-15.

Most mothers not born in the UK are from (in order) Pakistan, Poland, India and South Africa, see Table 6.

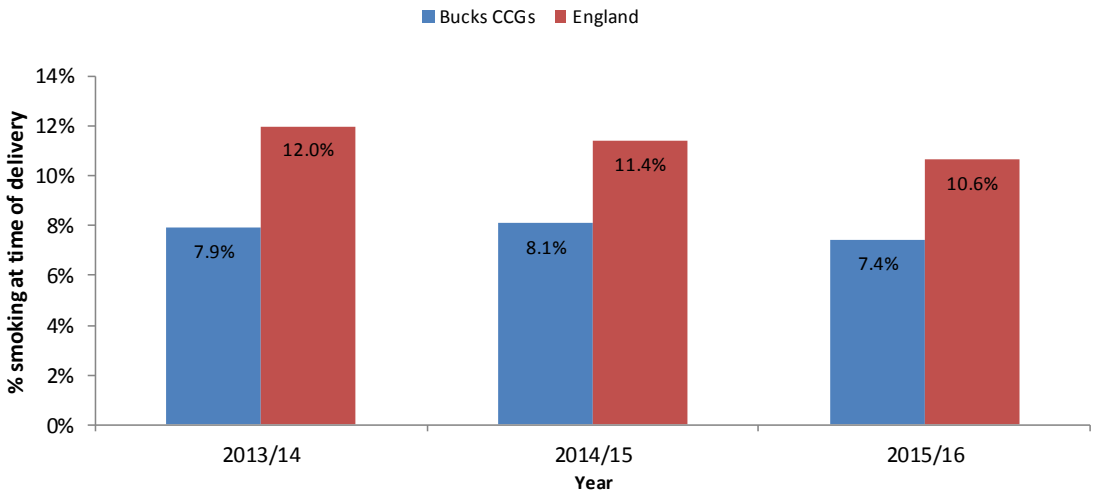
2013			2014			2015		
Country of birth	No.	% of all live births	Country of birth	No.	% of all live births	Country of birth	No.	% of all live births
1 Pakistan	324	5.6%	1 Pakistan	342	5.7%	1 Pakistan	345	5.6%
2 Poland	186	3.2%	2 Poland	182	3.0%	2 Poland	209	3.4%
3 India	83	1.4%	3 India	104	1.7%	3 India	95	1.5%
4 South Africa	67	1.2%	4 South Africa	54	0.9%	4 South Africa	65	1.1%
5 Germany	45	0.8%	5 Germany	50	0.8%	5 Romania	53	0.9%
6 Ireland	40	0.7%	6 Ireland	40	0.7%	6 Germany	46	0.7%
7 U.S.	35	0.6%	7 U.S.	40	0.7%	7 U.S.	41	0.7%
8 Romania	33	0.6%	8 Romania	38	0.6%	8 Ireland	38	0.6%
9 Zimbabwe	31	0.5%	9 Zimbabwe	33	0.6%	9 Zimba-bwe	33	0.5%
10 Sri Lanka	26	0.4%	10 Sri Lanka	29	0.5%	10 Slovakia	32	0.5%
Total births outside UK	1,452	24.9%	Total births outside UK	1,504	25.1%	Total births outside UK	1,608	26.2%
Total births	5,822		Total births	5,989		Total births	6,140	

Source: Office for National Statistics Annual Public Health Birth Files.

Table 6. Live births for the 10 most-common countries of birth of mothers not born in the UK, 2013-15.

6. Smoking status at time of delivery

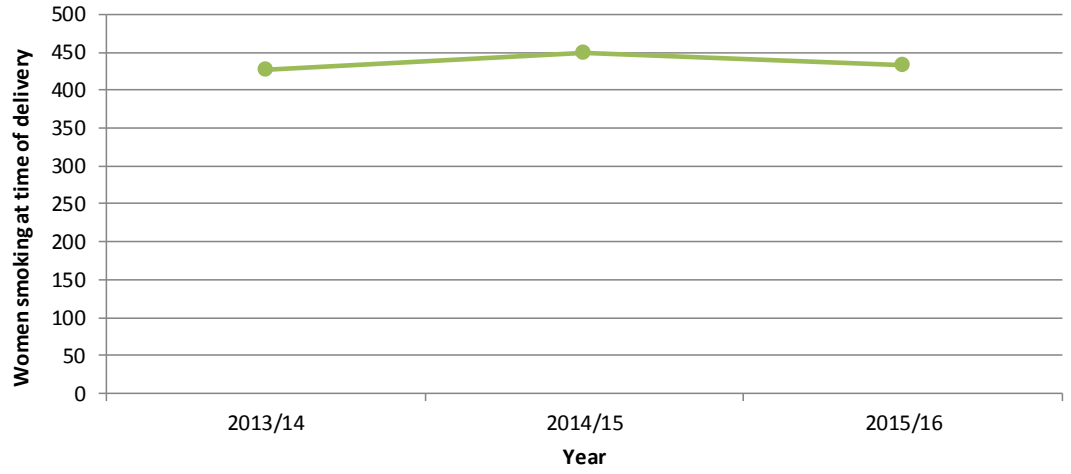
7.4% of women registered at GP practices within the Clinical Commissioning Groups (CCGs) in Buckinghamshire (NHS Aylesbury Vale CCG and NHS Chiltern CCG) had not quit smoking at time of delivery in 2015/16. There has been no change over the last three years, see Figure 8. Nationally, the trend for women's smoking status at time of delivery is decreasing.



Source: NHS Digital, Lifestyle Statistics.

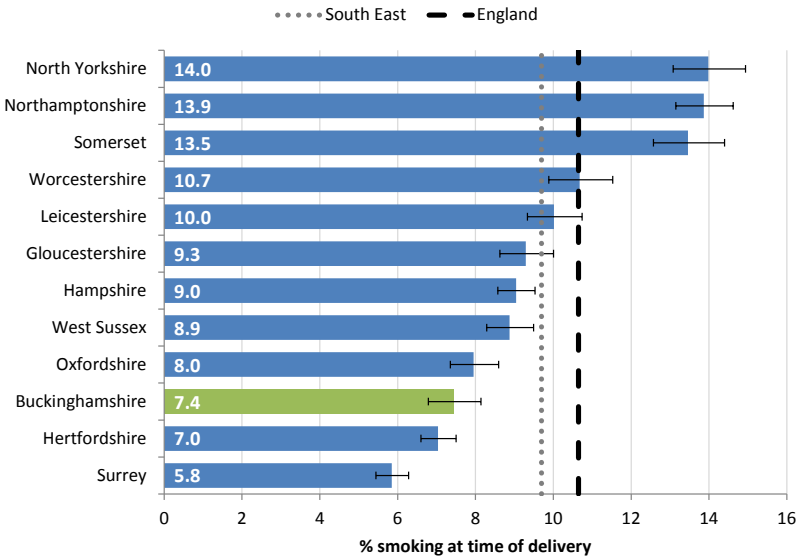
Figure 8. Percentage of women smoking at time of delivery, 2013/14-2015/16.

The number of women who had not quit smoking at time of delivery is shown in Figure 9. Numbers are approximately constant, and the rate is one of the lowest among Buckinghamshire's CIPFA peers, see Figure 10. Buckinghamshire's rate (7.4%) is significantly lower than the mean value of local authorities in both the South East region (9.7%) and England (10.7%). Values for CIPFA peers not included in Figure 10 are not published for data quality reasons.



Source: NHS Digital, Lifestyle Statistics.

Figure 9. Number of women smoking at time of delivery, 2013/14-2015/16.

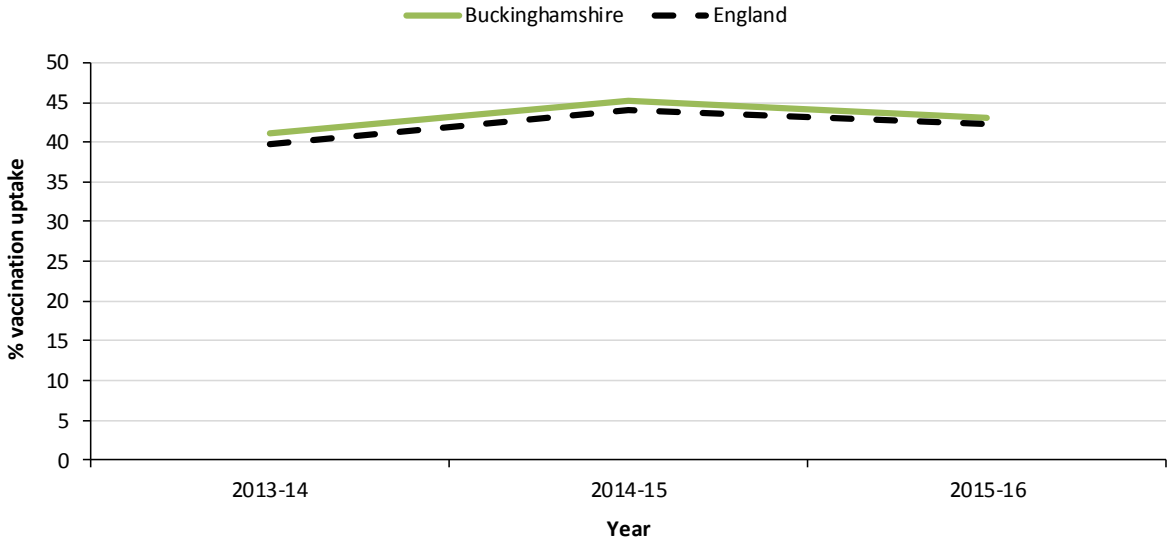


Source: Public Health England (PHE) Public Health Outcomes Framework, Indicator 2.03.

Figure 10. Smoking status at time of delivery, 2015/16.

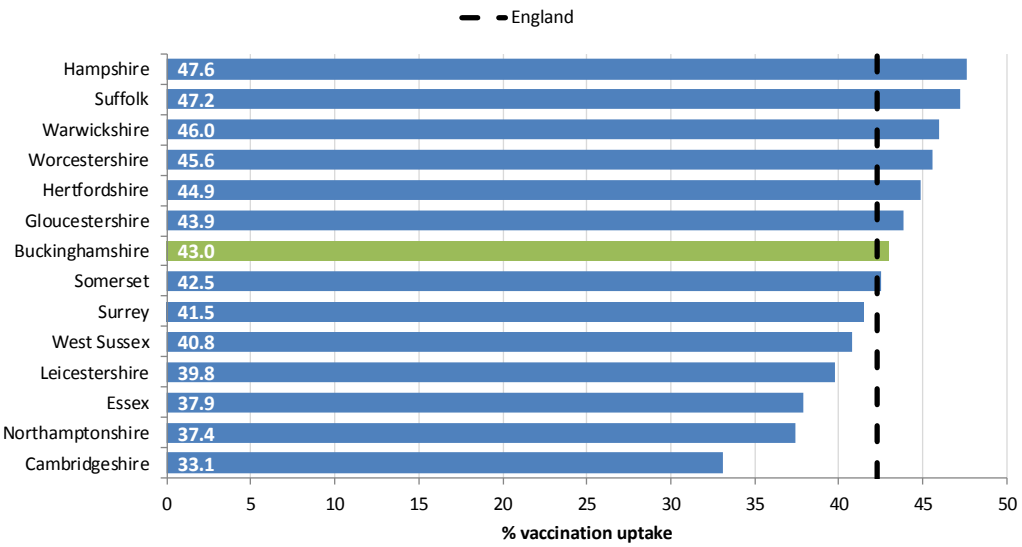
7. Flu immunisation among pregnant women

There is some evidence that seasonal influenza vaccination uptake has increased since 2013/14, see Figure 11. Buckinghamshire's influenza vaccination uptake (43.0% in 2015/16) is higher than the England average (42.3% in 2015/16), but is worse than many of its CIPFA peers, see Figure 12.



Source: Public Health England (PHE) Seasonal flu vaccine uptake in GP patients in England.

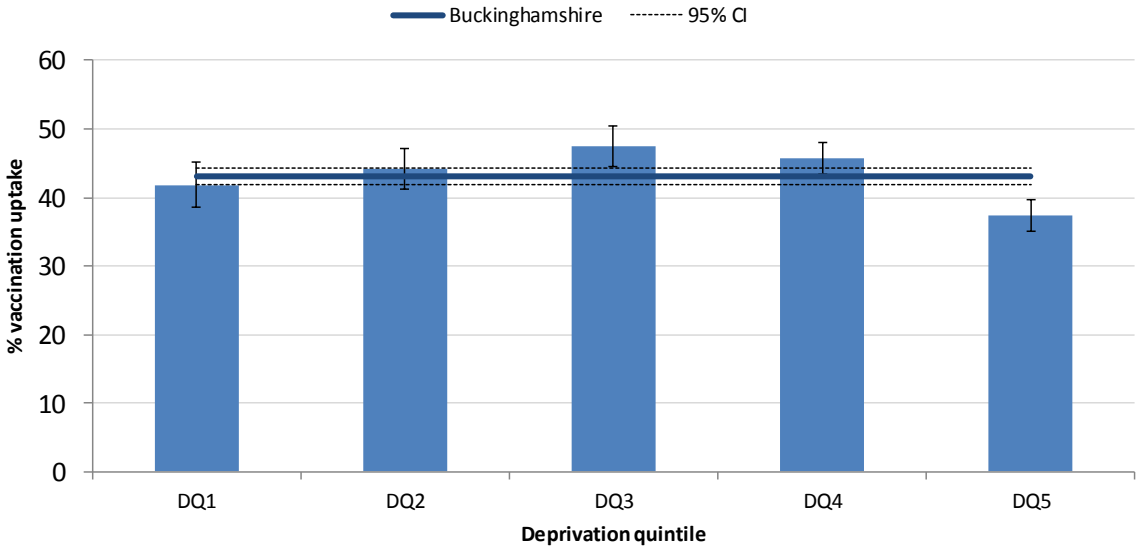
Figure 11. Flu vaccine uptake among pregnant women, 2013/14 to 2015/16.



Source: Public Health England (PHE) Seasonal flu vaccine uptake in GP patients in England: winter season 2015 to 2016.

Figure 12. Seasonal flu vaccine uptake among pregnant women, 2015-16.

Figure 13 shows the percentage uptake of seasonal influenza vaccination by pregnant women in 2015-16. Those who are living in the most deprived areas (DQ5) have a significantly lower uptake (37.3%) than the Buckinghamshire average (43.0%).

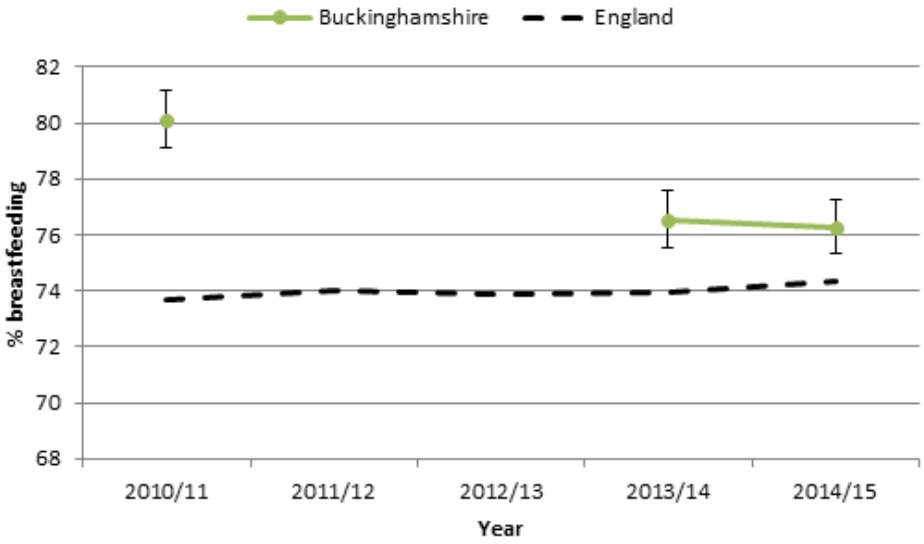


Source: Public Health England (PHE) Seasonal flu vaccine uptake in GP patients in England: winter season 2015 to 2016.

Figure 13. Seasonal flu vaccine uptake among pregnant women by deprivation quintile, 2015/16.

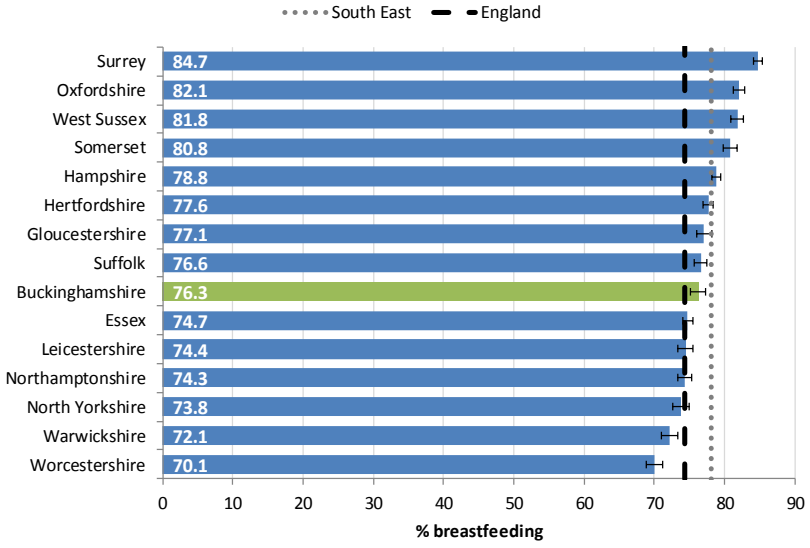
8. Breastfeeding

Figure 14 shows that breastfeeding initiation in Buckinghamshire is significantly higher than the England average, but is worse than many of its CIPFA peers, see Figure 15. The proportion of women initiating breastfeeding in Buckinghamshire in 2014/15 (76.3%) is significantly lower than in the South East region (78.0%). Values for missing CIPFA peers are not published for data quality reasons.



Source: Public Health England (PHE) Child Health Pregnancy.

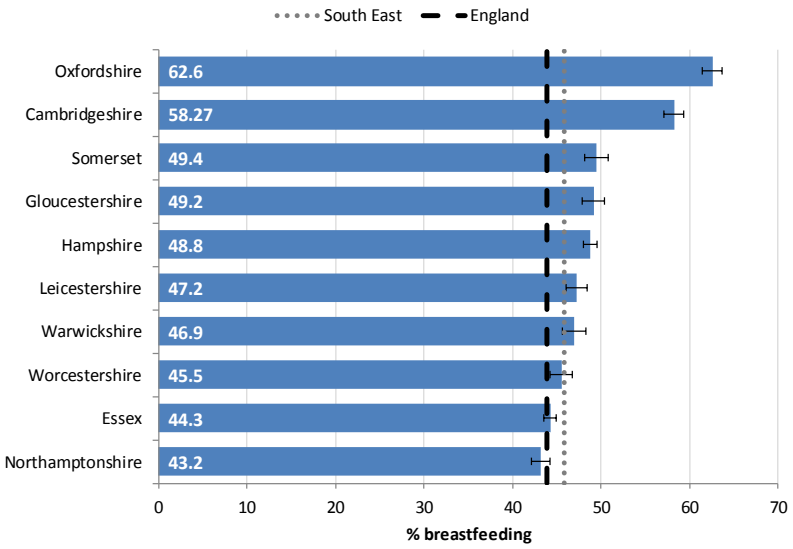
Figure 14. Breastfeeding initiation in Buckinghamshire, 2010/11-2014/15.



Source: Public Health England (PHE) Public Health Outcomes Framework, Indicator 2.02i.

Figure 15. Breastfeeding initiation among Buckinghamshire's CIPFA peers, 2014/15.

In common with several of its CIPFA peers, Buckinghamshire's return for breastfeeding prevalence at 6-8 weeks was not published in 2014/15 owing to concerns with data quality, see Figure 16.

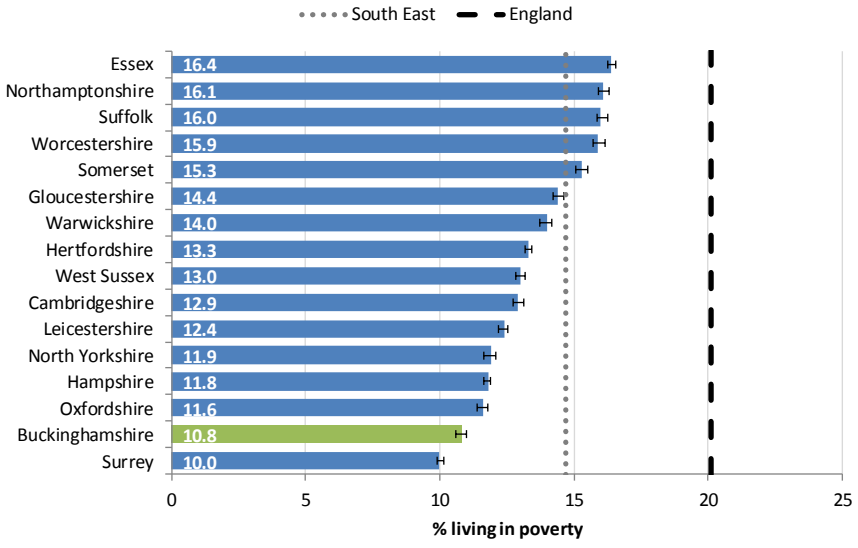


Source: Public Health England (PHE) Public Health Outcomes Framework, Indicator 2.02ii.

Figure 16. Breastfeeding at 6-8 weeks (historical method) among Buckinghamshire's CIPFA peers, 2014/15.

9. Children living in poverty

In 2014, the proportion of children (aged under 16 years) in Buckinghamshire living in poverty[1] (10.8%) was significantly lower than in the South East region (14.7%) and England (20.1%), see Figure 17. Only Surrey had a lower proportion of children living in poverty.

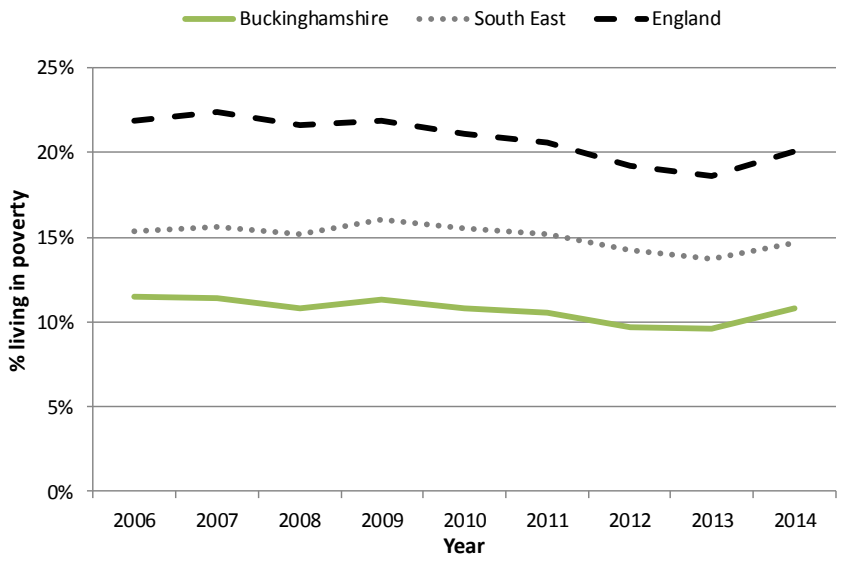


Source: Public Health England (PHE) Public Health Outcomes Framework, Indicator 1.01ii.

Figure 17. Percentage of children in low income families among Buckinghamshire's CIPFA peers, 2014.

1 Children living in families in receipt of out of work benefits or tax credits where their reported income is less than 60% of the median income.

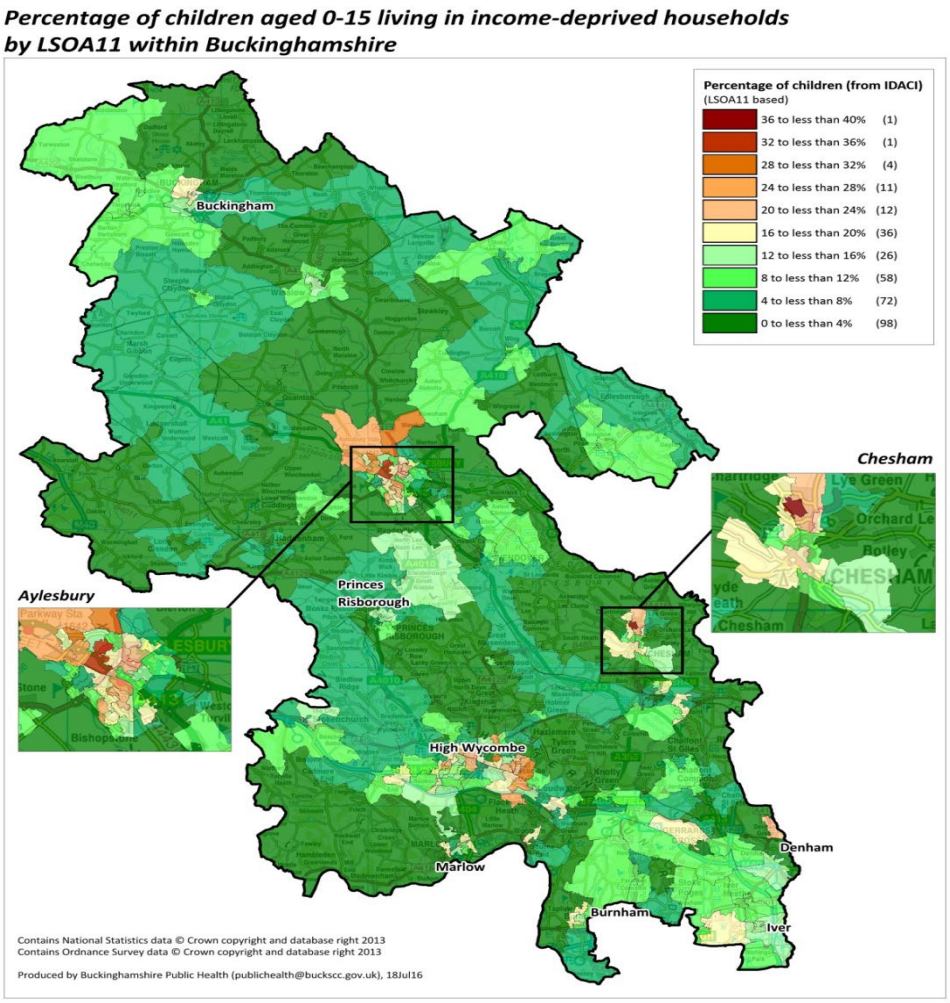
There is strong evidence that the proportion of children in Buckinghamshire that are living in poverty decreased between 2006 and 2014, see Figure 18.



Source: Public Health England (PHE) Public Health Outcomes Framework, Indicator 1.01ii.

Figure 18. Percentage of children in low income families in Buckinghamshire, 2006-14.

The percentage of children who are living in income-deprived households is shown in Figure 19. Areas near Chesham have the highest percentage of children living in income-deprived households in Buckinghamshire. Other areas of high income deprivation include Aylesbury and High Wycombe.

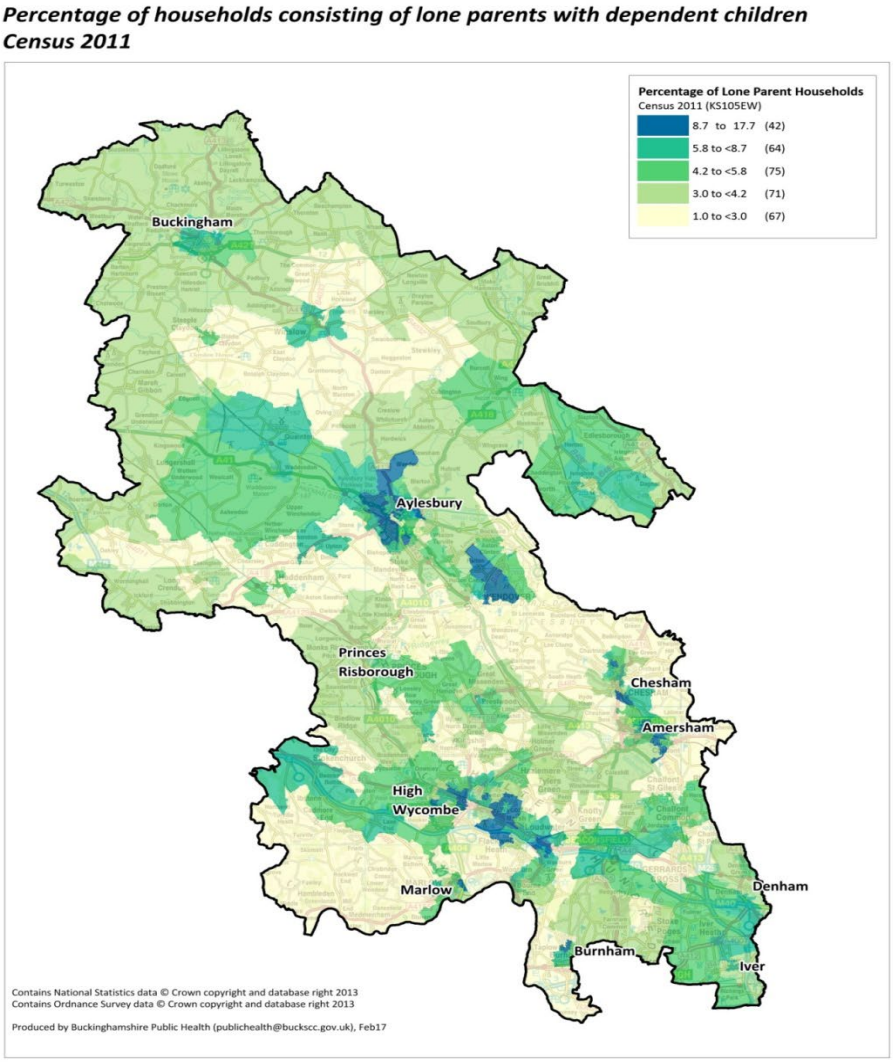


Source: Department for Communities and Local Government (DCLG) English indices of deprivation 2015.

Figure 19. Income Deprivation Affecting Children Index, 2015.

10. Lone parents

The highest proportions of lone parent families tend to occur in places of highest deprivation, particularly Aylesbury and High Wycombe, see Figure 20 and Table 7.



Source: Census 2011.

Figure 20. Percentage of households consisting of lone parents with dependent children, 2011.

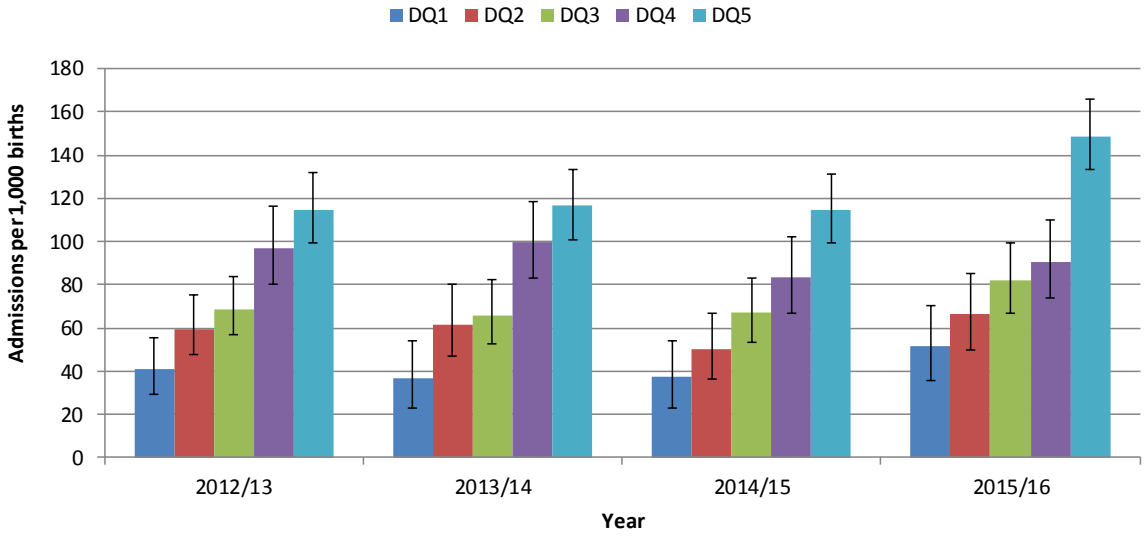
Deprivation quin-tile	Lone households	All households
DQ1	1,339 (3.4%)	39,852
DQ2	1,691 (4.2%)	39,985
DQ3	1,806 (4.5%)	40,410
DQ4	2,262 (5.5%)	40,928
DQ5	3,452 (8.7%)	39,552
Buckinghamshire	10,550 (5.3%)	200,727

Source: Census 2011.

Table 7. Number and proportion of lone-parent households, 2011.

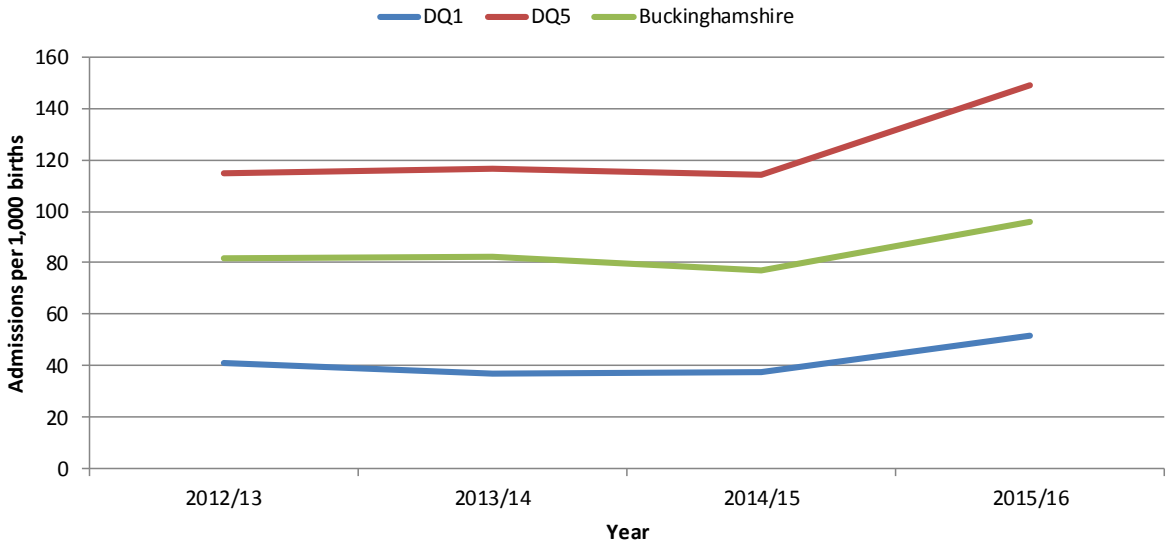
11. Perinatal mental health admissions

Those living in more deprived areas have a higher proportion of maternity admissions where there was also a mental health diagnosis, see Figure 21. Figure 22 shows that there has been a recent increase in the rate of admissions per 1,000 births.



Source: SUS Admitted Patient Care (APC) Minimum Data Set (MDS) and Office for National Statistics Annual Public Health Birth Files.

Figure 21. Maternity admissions where there is also a mental health diagnosis in Buckinghamshire by deprivation quintile, 2012/13-2015/16.

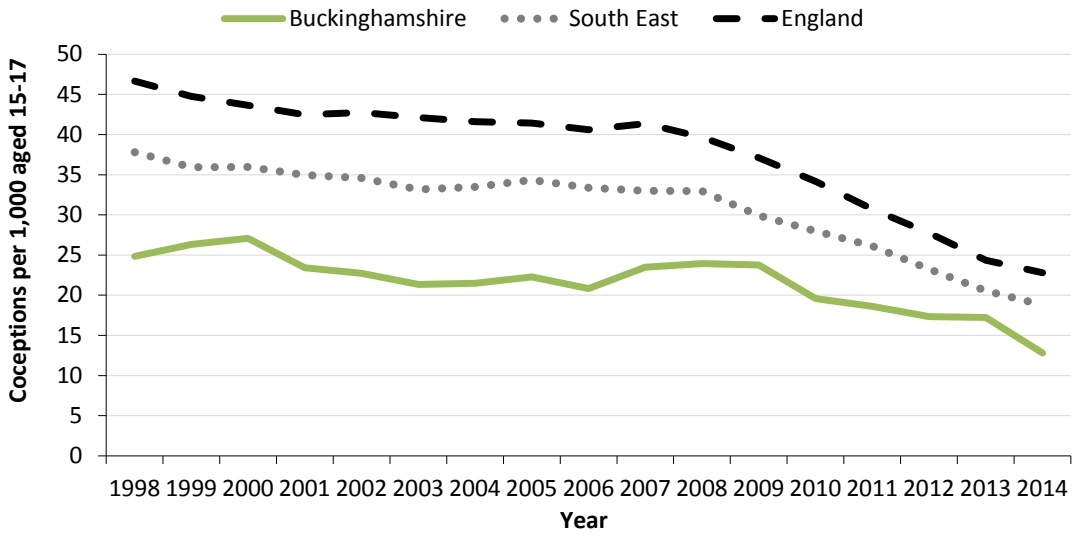


Source: SUS Admitted Patient Care (APC) Minimum Data Set (MDS).

Figure 22. Maternity admissions where there is also a mental health diagnosis per 1,000 births, 2012/13-2015/16.

12. Teenage conceptions

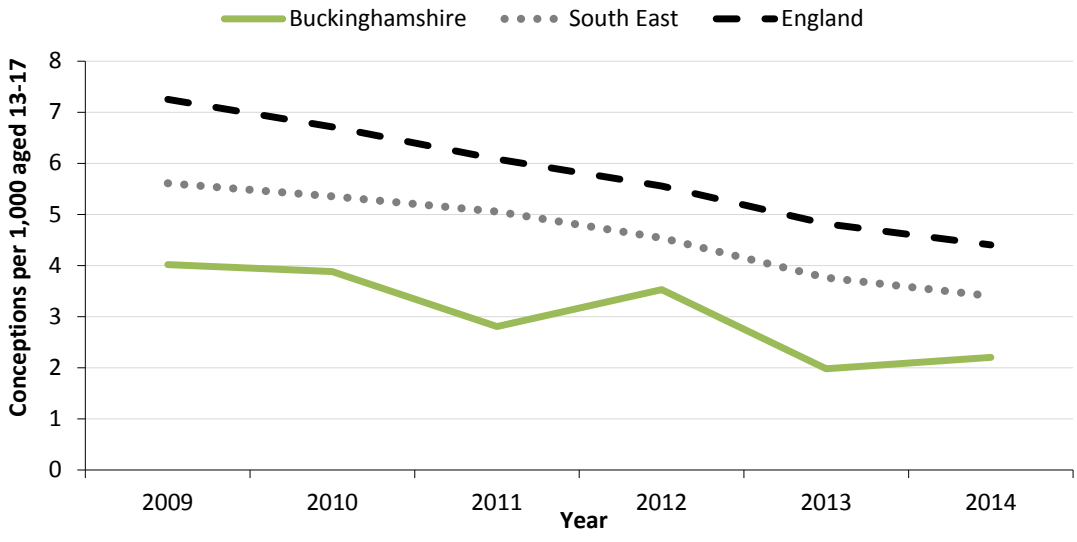
Figure 23 shows that conceptions among those aged 15-17 years has been decreasing since 1998.



Source: Public Health England (PHE) Public Health Outcomes Framework, Indicator 2.04.

Figure 23. Teenage conceptions per 1,000 females aged 15-17 years, 1998-2014.

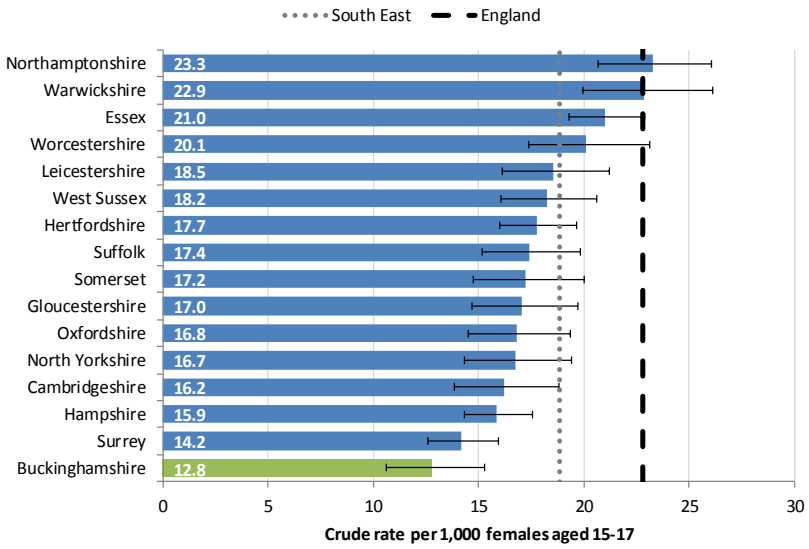
In Buckinghamshire, conceptions in those aged 13-15 years has halved from 4.0 per 1,000 in 2009 to 2.2 per 1,000 in 2014, see Figure 24. This trend is significant and reflects the regional and national trends.



Source: Public Health England (PHE) Public Health Outcomes Framework, Indicator 2.04.

Figure 24. Teenage conceptions per 1,000 females aged 13-15 years, 2009-14.

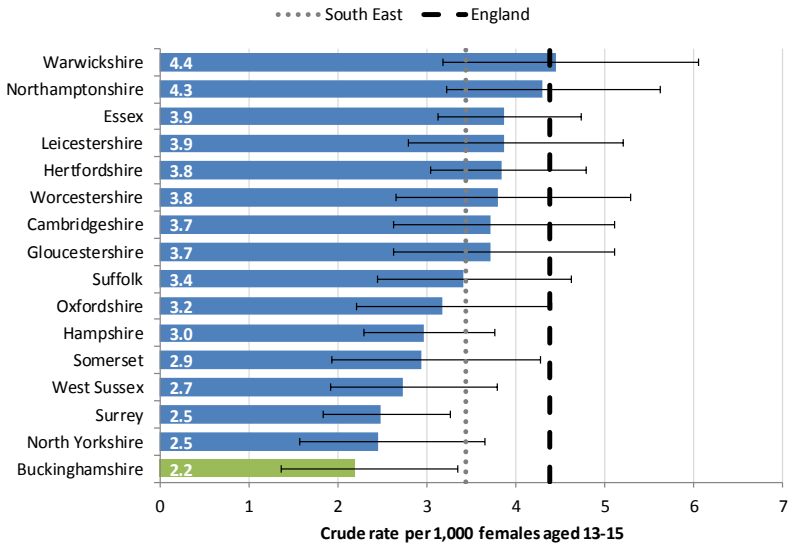
In 2014, Buckinghamshire had the lowest rate of teenage conceptions per 1,000 females aged 15-17 years among its CIPFA peers, see Figure 25. This value (12.8) was significantly less than in the South East region (18.8) and England (22.8).



Source: Public Health England (PHE) Public Health Outcomes Framework, Indicator 2.04.

Figure 25. Teenage conceptions per 1,000 females aged 15-17 years among Buckinghamshire's CIPFA peers, 2014.

In 2014, Buckinghamshire had the lowest rate of teenage conceptions per 1,000 females aged 13-15 years among its CIPFA peers, see Figure 26. This value (2.2) was significantly less than in the South East region (3.4) and England (4.4).

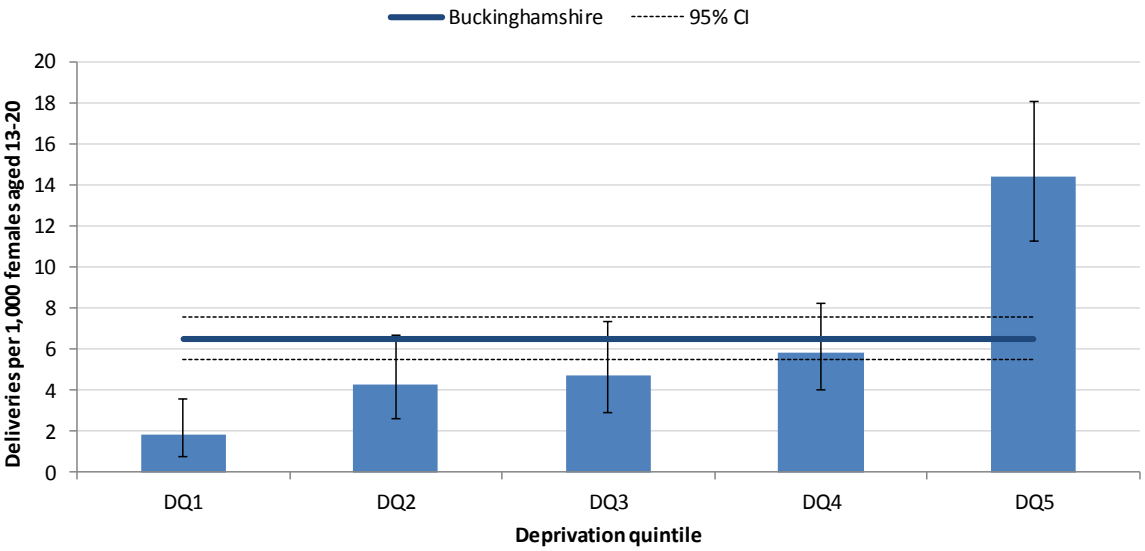


Source: Public Health England (PHE) Public Health Outcomes Framework, Indicator 2.04.

Figure 26. Teenage conceptions per 1,000 females aged 13-15 years among Buckinghamshire's CIPFA peers, 2014.

13. Teenage deliveries

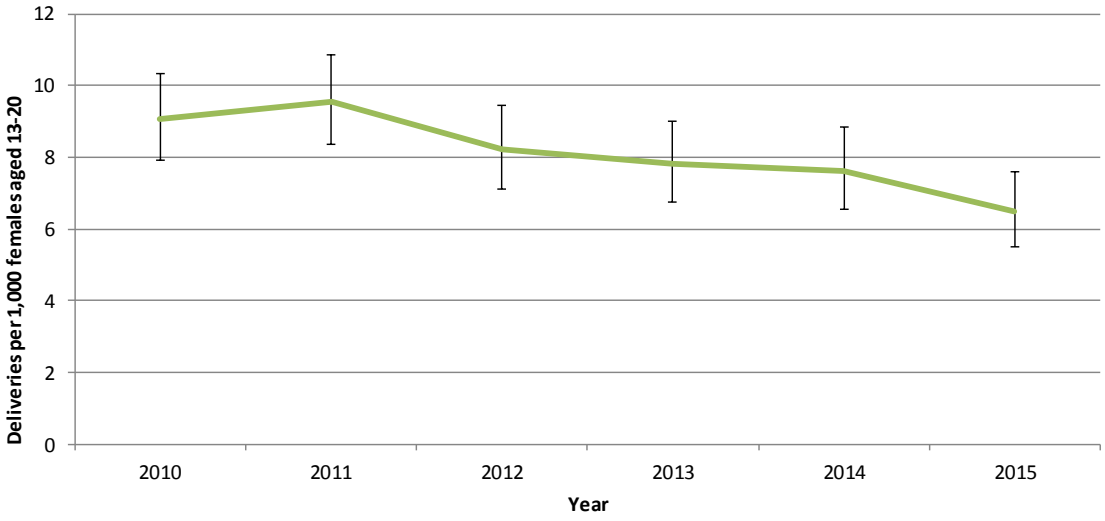
Figure 27 shows that the number of deliveries per 1,000 females under 20 years of age at time of conception is highest in the most deprived quintile (DQ5). This value (14.4) is significantly higher than the Buckinghamshire average (6.5).



Source: SUS Admitted Patient Care (APC) Minimum Data Set (MDS).

Figure 27. Number of deliveries per 1,000 females under 20 years of age at time of conception by deprivation quintile, 2015.

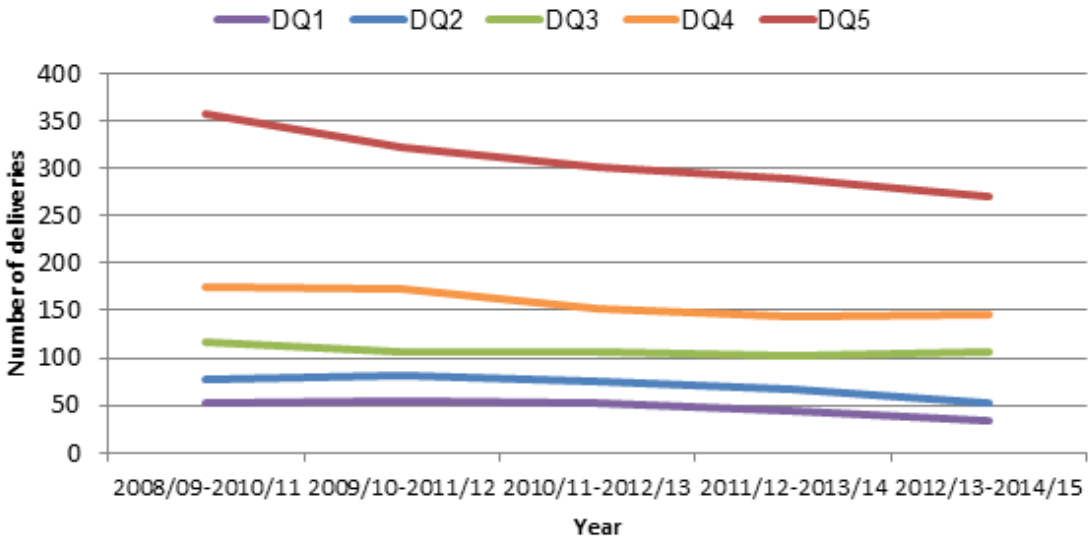
Figure 28 shows that the number of deliveries to mothers aged under 20 years at conception per 1,000 females has been decreasing since 2010.



Source: SUS Admitted Patient Care (APC) Minimum Data Set (MDS).

Figure 28. Number of deliveries per 1,000 females under 20 years of age at time of conception in Buckinghamshire, 2010-15.

The number of deliveries to mothers under 20 years of age at time of conception in each deprivation quintile is shown in Figure 29. There are more deliveries in the most deprived areas (DQ5), and a clear deprivation gradient.

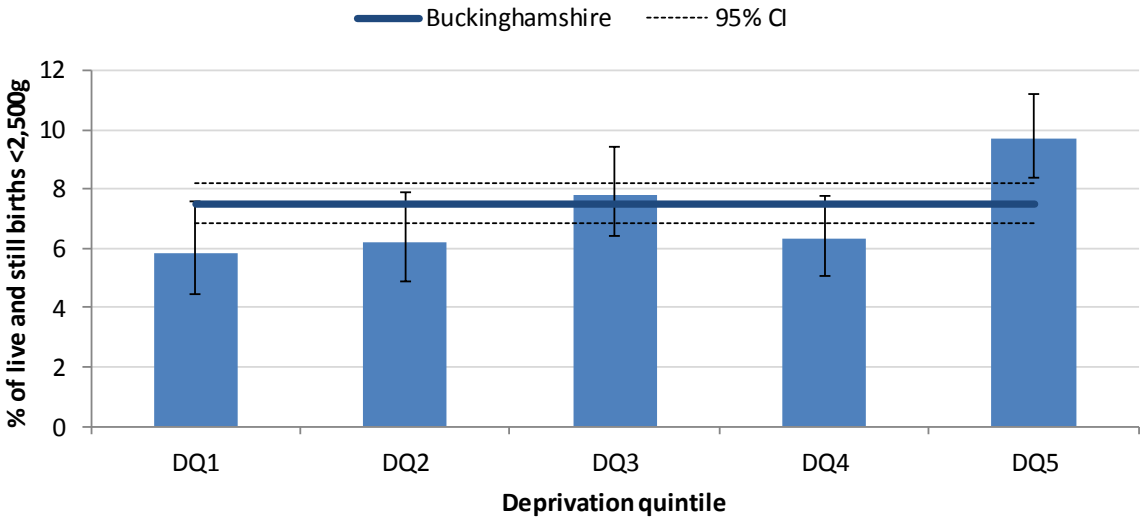


Source: Source: SUS Admitted Patient Care (APC) Minimum Data Set (MDS).

Figure 29. Deliveries to mothers resident in Buckinghamshire who conceived aged under 20 years by deprivation quintile, 2008/09-2010/11 to 2012/13-2014/15.

14. Low birth weight

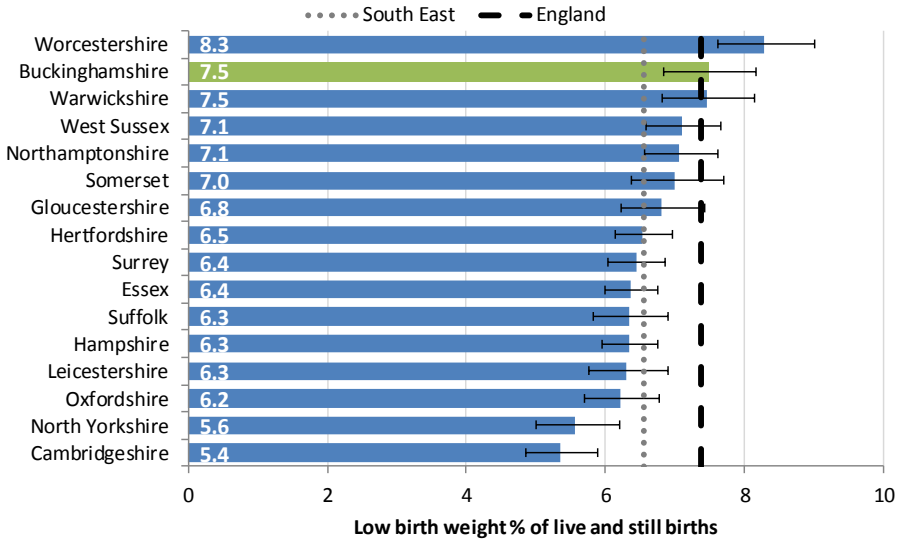
Mothers living in the most deprived areas (DQ5) had a significantly higher proportion of babies with low birth weight (less than 2,500g) in 2015 than the Buckinghamshire average, see Figure 30.



Source: Office for National Statistics Annual Public Health Birth Files.

Figure 30. Low birth weight of all births in Buckinghamshire by deprivation quintile, 2015.

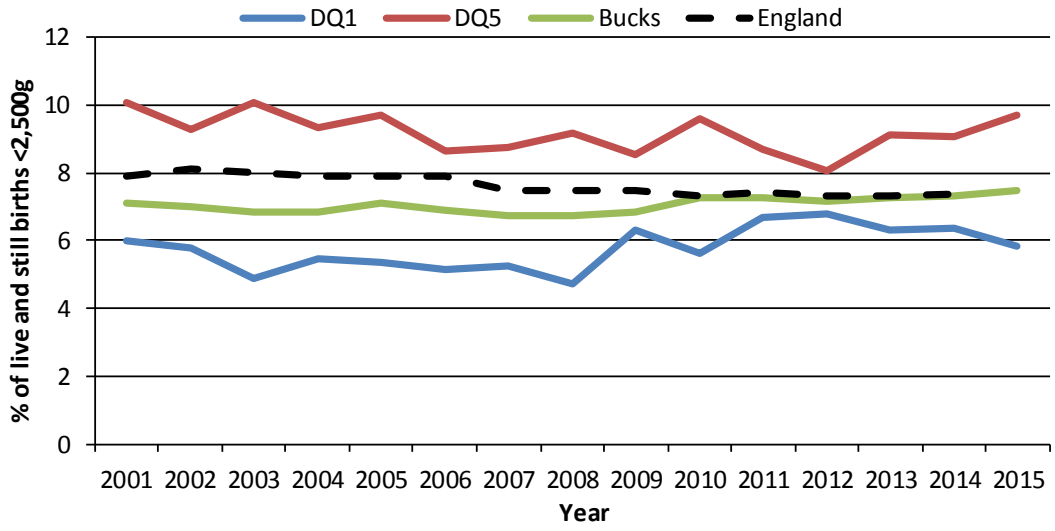
Among its CIPFA peers, Buckinghamshire had the second highest rate of low birth weight babies in 2015, see Figure 31.



Source: Office for National Statistics, Vital Statistics Table VS2.

Figure 31. Low birth weight for all births among Buckinghamshire's CIPFA peers, 2015.

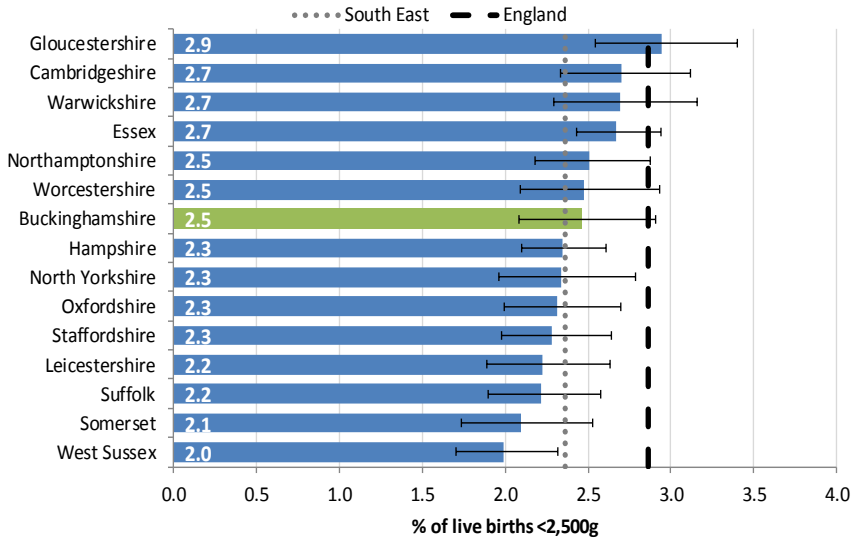
Babies with low birth weight as a proportion of live and stillbirths is shown in Figure 32. The average value for Buckinghamshire is similar to the England average.



Source: Office for National Statistics Annual Public Health Birth Files.

Figure 32. Low birth weight of all births in Buckinghamshire, 2001-15.

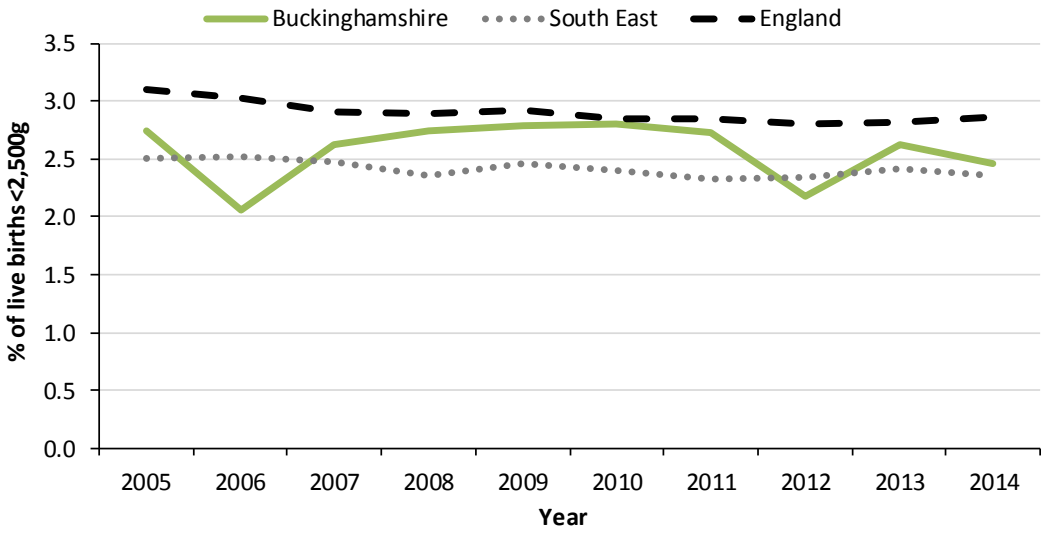
For term babies, Buckinghamshire's proportion of low birth weight babies in 2014 was higher than many of its CIPFA peers, see Figure 33.



Source: Public Health England (PHE) Public Health Outcomes Framework, Indicator 2.01.

Figure 33. Low birth weight of term babies among Buckinghamshire's CIPFA peers, 2014.

Babies with low birth weight at term (at least 37 complete weeks) as a proportion of live births is shown in Figure 34. The average value for Buckinghamshire is similar to the England average.

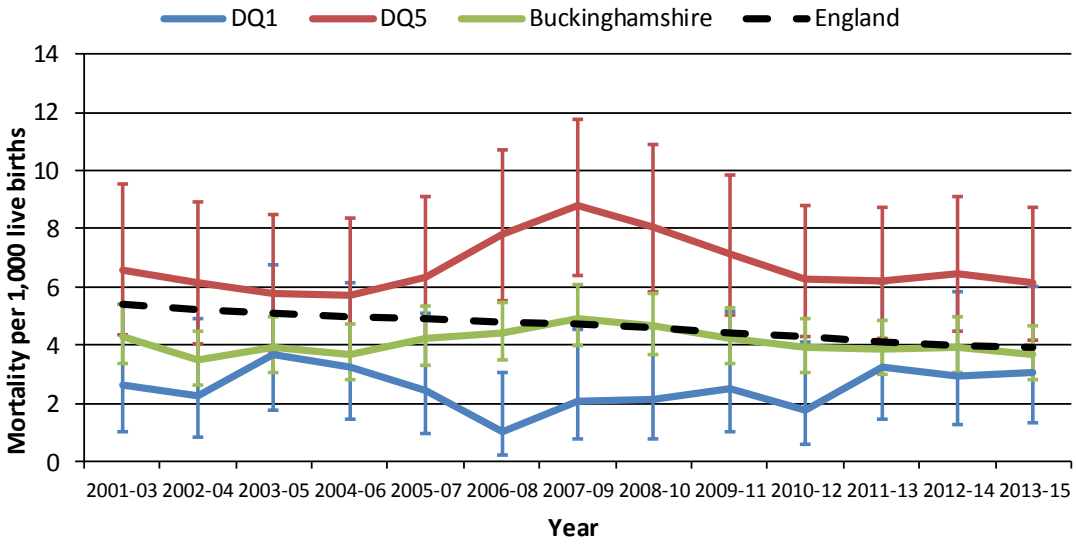


Source: Public Health England (PHE) Public Health Outcomes Framework, Indicator 2.01.

Figure 34. Low birth weight of term babies in Buckinghamshire, 2005-14.

15. Infant mortality

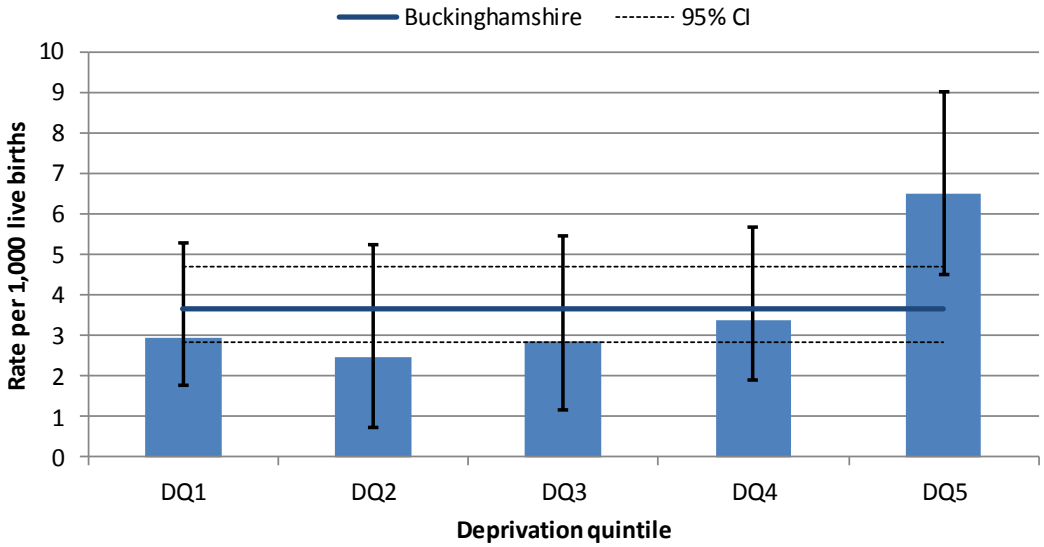
Infant mortality in Buckinghamshire has been approximately 4 deaths per 1,000 live births since 2001-03, see Figure 35.



Source: Office for National Statistics Primary Care Mortality Database (PCMD) and Annual Public Health Birth Files.

Figure 35. Infant mortality per 1,000 live births, 2001-03 to 2013-15.

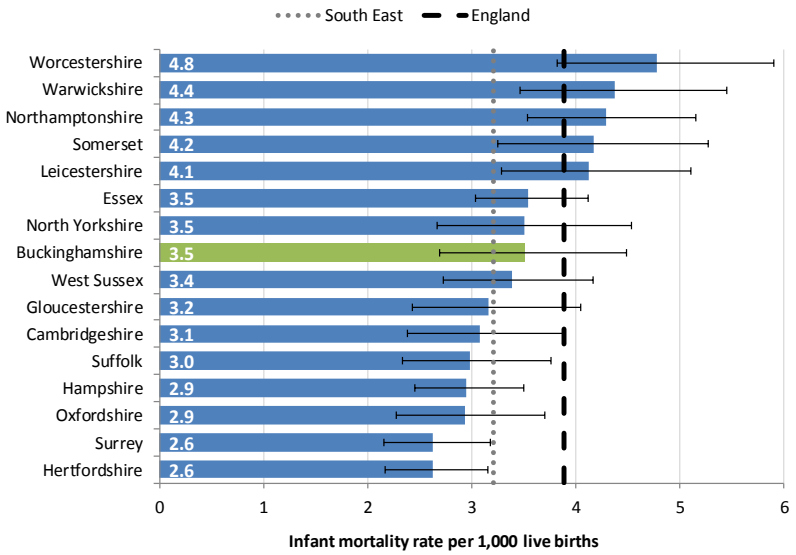
Those living in the most deprived areas (DQ5) have the highest rate of infant mortality, see Figure 36.



Source: Office for National Statistics Primary Care Mortality Database (PCMD) and Annual Public Health Birth Files.

Figure 36. Infant mortality per 1,000 live births by deprivation quintile, 2013-15.

Buckinghamshire's infant mortality rate for 2013-15 was worse than many of its CIPFA peers, see Figure 37.



Source: Public Health England (PHE) Public Health Outcomes Framework, Indicator 4.01.

Figure 37. Infant mortality rate among Buckinghamshire's CIPFA peers, 2013-15.

16. Infant hospital admissions

Table 8 shows the number of all and emergency hospital admissions for infants (under 1 year of age). Of the 1,709 infants admitted to hospital in 2015/16, 1,237 had one admission, 295 had 2 admissions, 92 had 3 admissions and 85 had 4 or more admissions.

Admissions		Year				
2011/12		2012/13	2013/14	2014/15	2015/16	
All	Infants	1,518	1,645	1,477	1,563	1,709
	Total admissions	2,256	2,371	2,162	2,370	2,583
Emergency	Infants	1,297	1,473	1,352	1,445	1,579
	Total admissions	1,744	1,985	1,885	2,071	2,197

Source: SUS Admitted Patient Care (APC) Minimum Data Set (MDS).

Table 8. All and emergency hospital admissions for infants, 2011/12-2015/16.

17. Early Years Foundation Stage

The proportion of Buckinghamshire pupils achieving a Good level of development in the Early Years Foundation Stage is higher than England for White, Mixed and Chinese ethnic Groups, as shown in Table 9.

	White		Mixed		Asian		Black		Chinese		All pupils	
	No. of pupils	%	No. of pupils	%	No. of pupils	%	No. of pupils	%	No. of pupils	%	No. of pupils	%
Bucks	4,724	73	526	75	935	59	158	67	29	76	6,577	71
England		70		71		68		68		69		69

Source: Department for Education (DfE) Early Years Foundation Stage profile results: 2015 to 2016 (Additional Tables).

Table 9. Number of pupils achieving a Good level of development in the Early Years Foundation Stage by ethnicity, 2016.

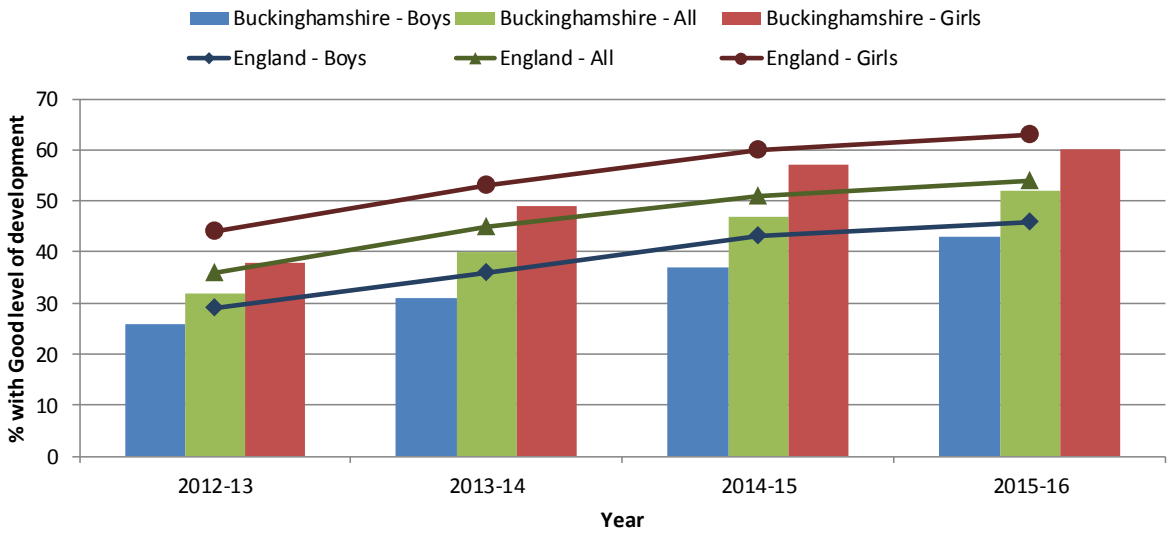
Table 10 shows the percentage of pupils in each deprivation quintile who achieve a Good level of development in the Early Years Foundation Stage.

Deprivation quintile	Number of pupils	% achieving a Good level of development
DQ1	1,125	78.8%
DQ2	1,093	75.3%
DQ3	1,268	73.1%
DQ4	1,197	70.1%
DQ5	1,637	61.0%
Other	262	64.1%
Total	6,582	70.5%

Source: Department for Education (DfE) Early Years Foundation Stage profile results: 2015 to 2016.

Table 10. Percentage of pupils achieving a Good level of development in the Early Years Foundation Stage by deprivation quintile, 2016.

Compared to England, lower proportions of pupils who are eligible for free school meals achieve a Good level of development, see Figure 38. In 2015/16, 43% of boys and 60% of girls eligible for free school meals achieved a good level of development. On average, 52% of Buckinghamshire pupils eligible for free schools meals achieved a good level of development.

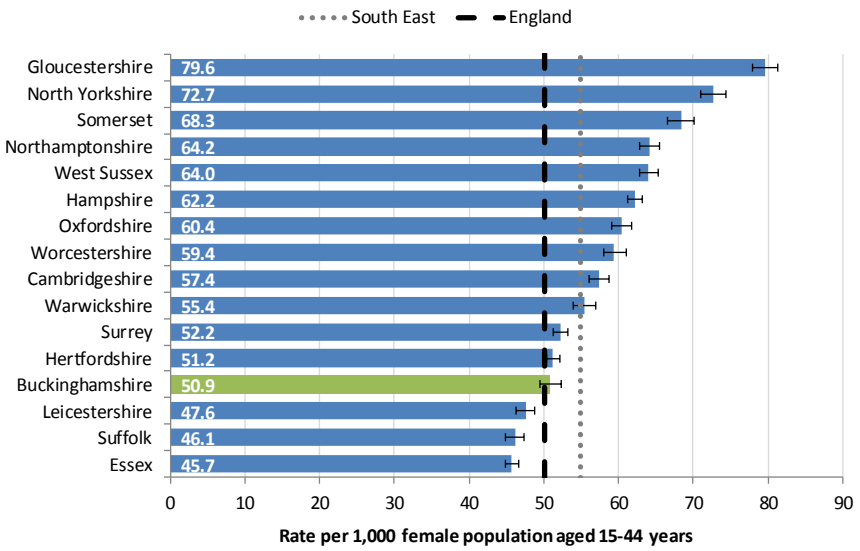


Source: Department for Education (DfE) Early Years Foundation Stage profile results: 2012-13 to 2015-16.

Figure 38. Percentage of pupils eligible for free school meals achieving a Good level of development in Early Years Foundation Stage, 2012-13 to 2015-16.

18. Long-acting reversible contraception

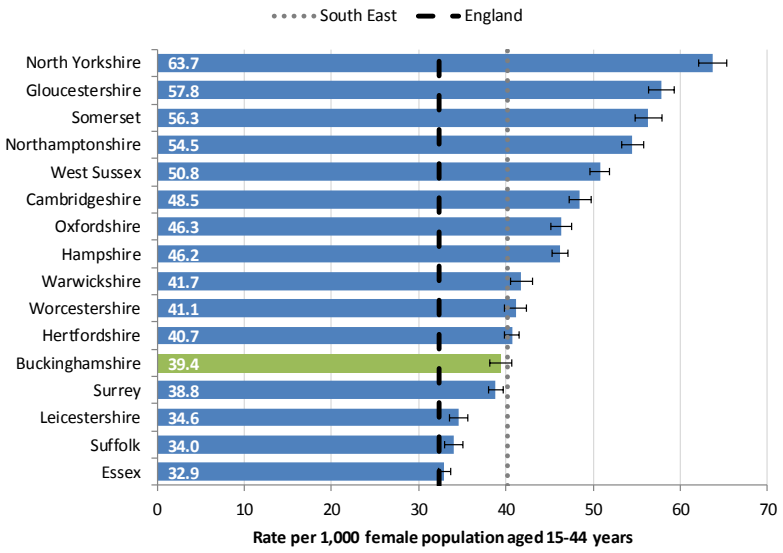
Figure 39 shows that Buckinghamshire's total prescriptions per 1,000 females aged 15-44 years in 2014 was similar to the England average, comparatively low among its CIPFA peers and statistically lower than local authorities in the South East region.



Source: Public Health England (PHE) Sexual and Reproductive Health Fingertips Tool.

Figure 39. Total LARC prescriptions, excluding injections, per 1,000 females aged 15-44 years among Buckinghamshire's CIPFA peers, 2014.

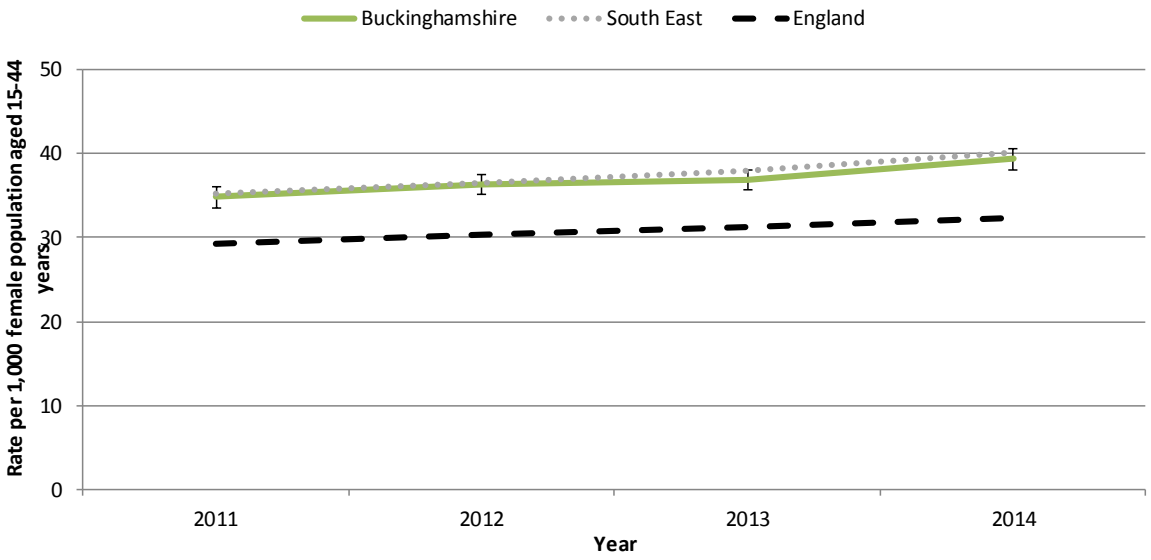
GP-prescribed LARC in Buckinghamshire in 2014 was comparatively low among its CIPFA peers, see Figure 40.



Source: Public Health England (PHE) Sexual and Reproductive Health Fingertips Tool.

Figure 40. GP-prescribed LARC, excluding injections, per 1,000 females aged 15-44 years, 2014.

GP-prescribed LARC in Buckinghamshire is significantly higher than the England average, see Figure 41.

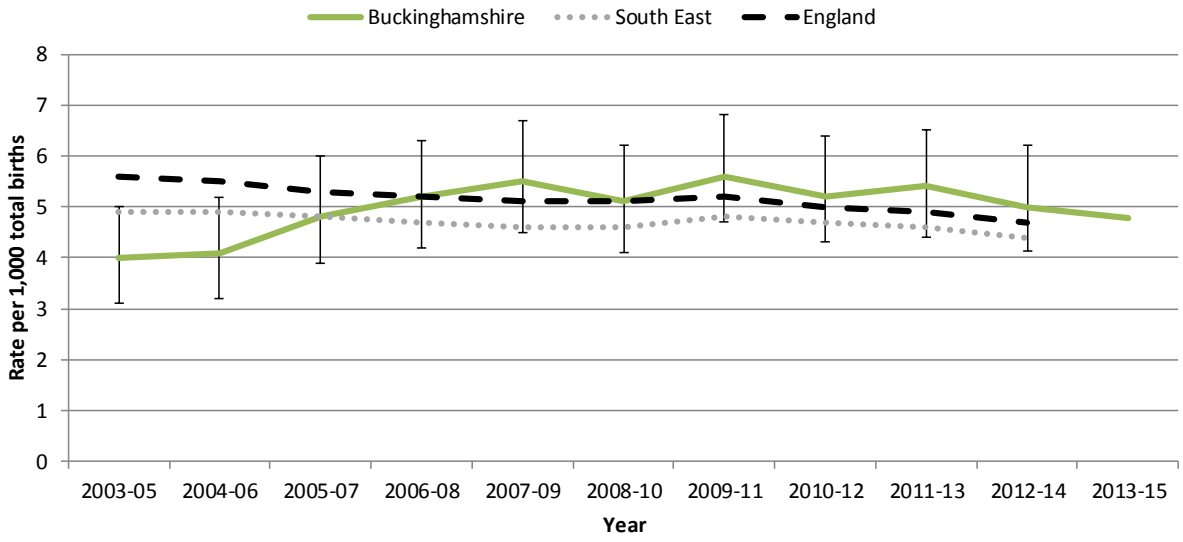


Source: Public Health England (PHE) Sexual and Reproductive Health Fingertips Tool.

Figure 41. GP-prescribed LARC in Buckinghamshire, 2011-14.

19. Stillbirth

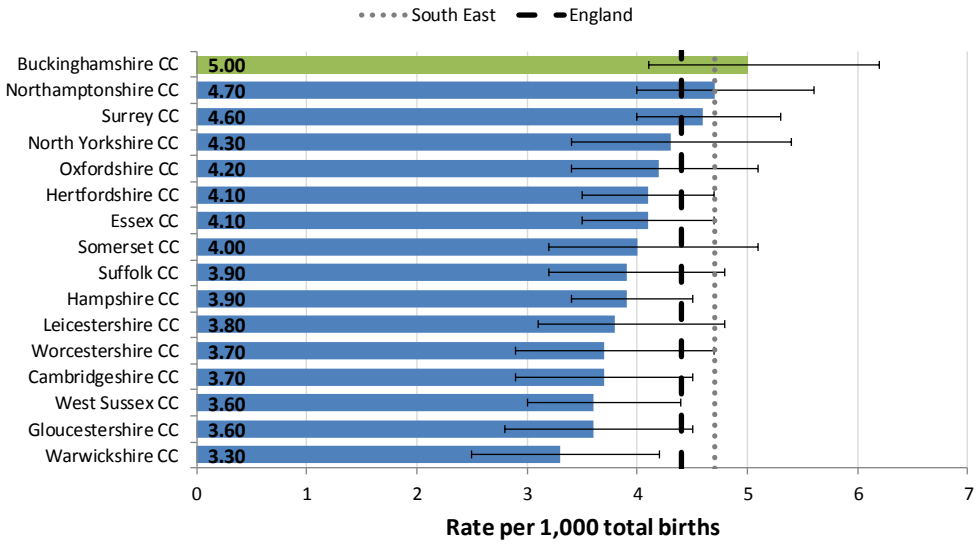
Figure 42 shows that the three-year average of stillbirths per 1,000 total births in Buckinghamshire has been approximately constant since 2006-08, compared to a decreasing national trend.



Source: NHS Digital Indicator Portal, Indicator P00468.

Figure 42. Stillbirths per 1,000 total births in Buckinghamshire, 2003-05 to 2013-15.

In 2012-14 there were 91 stillbirths. Buckinghamshire had the highest rate among its CIPFA peers for still-birth in 2012-14, see Figure 43.



Source: NHS Digital Indicator Portal, Indicator P00468.

Figure 43. Stillbirths per 1,000 total births among Buckinghamshire's CIPFA peers, 2012-14

Progress on previous recommendations

	2014/2015 recommendation	What has happened?
1.	Active Environments	
1.1	Local government and partners should work to ensure that we make active travel a safe and attractive option for Buckinghamshire residents so they can easily build being active into their busy lives.	✓ Active travel interventions are being delivered across Buckinghamshire, mainly through the BCC Transport Strategy Team and supported by Public Health. These include School Travel Plans and Simply Walk. ✓ A new intervention this year has been the introduction of School Travel Zones – working with 10 primary schools to put up signage to encourage car parking at least five minutes away from the school and walk the rest of the way – thus reducing congestion and increasing walking/steps.
1.2	Local government and partners should work to ensure that the design of the built environment promotes physical activity for all ages and abilities including provision of safe green spaces for play and recreation close to where people live	✓ The Healthy Communities Partnership organised a 'Place' workshop where stakeholders discussed how best to make environmental improvements. ✓ In addition, we contributed to the District Local Plans to ensure healthy lifestyle considerations such as active travel.
1.3	Local government and partners should work to ensure that new housing developments should be designed to promote physical activity and active travel.	✓ See Recommendation 1.2
1.4	Local government and partners should work to ensure that green spaces in urban areas are maintained or improved, especially in areas where there is poorer access to high quality green space and higher health needs.	✓ District Councils are maintaining green spaces and other areas that can support physical activity such as play areas and sports pitches. Specific activities which are being actioned by individual Districts are: ✓ Aylesbury Vale District Council are undertaking a qualitative, quantitative and accessibility review of the open space, sports and recreation needs for Aylesbury Vale, which takes into account the housing proposals set out in Vale of Aylesbury Local Plan and whether such growth will generate the need for additional facilities or a potential increase in usage of existing ones. On-site provision and/or off-site contributions from developers will be sought where appropriate to provide new and/or improve existing facilities.

		✓ Chiltern District Council and South Bucks District Council are currently undertaking a qualitative and quantitative review of the Open Spaces and Playing Pitches within both districts. That review will identify key actions that the councils need to consider in improving and maintaining access to quality green space. ✓ The review will report back to the council in April/May 2017 following which the action plan may be developed further. The review will feed in to the revised local plan ✓ Wycombe District Council has two current Green Flag standard parks with a third being added for judging this year. Local residents and key stakeholders have recently been invited to have their say on improving three green spaces within the District including The Rye, Hughenden Park and Totteridge Recreation Ground. These projects are to be delivered in 2017/2018. In addition to this the council's Play Strategy is currently being reviewed.
1.5	Local government and partners should work to ensure that opportunities to be active throughout Buckinghamshire are widely promoted to residents and visitors.	✓ We have ensured this through Active Bucks through the commissioning of over 140 activity programmes across the county, based on feedback of over 3500 residents. We've also developed www.activebucks.co.uk to allow universal access of residents to find activities local to them – including option to access a voucher to get their first session free.
2	Active Communities	
2.1	Local government and partners should work to ensure that we continue to work with communities to explore how best to make physical activity part of the social "norm" for that community, ensuring community ownership and engagement that can help bring about the changes needed.	✓ This has mainly been achieved through Active Bucks – following on from engaging residents, then developing activities based on this insight, then ensuring residents know what's available near them – including effective use of Active Bucks Community Champions (volunteers).
	Local organisations and other bodies such as housing trusts and parish councils should consider whether there are more ways they could help their communities be more active.	✓ Parish Councils have been a key part of developing and promoting the Active Bucks activities as they have access to facilities/ assets and local communication channels to utilise.

3	Children and Young People	
3.1	Buckinghamshire County Council, early years centres and schools should continue to work together to ensure all settings are able to deliver physical literacy skills to 3-7 year old children.	✓ The Buckinghamshire Physical Literacy Project pilot concluded in July 2016 after delivery over 2 academic years. Across this period, 28 early years' settings and 25 primary schools took part. 87 members of staff were trained in total - attending a training session and receiving resources and follow-up mentoring on their site. The project was independently evaluated by UK Active and results show a statistical improvement in fundamental movement skills (e.g. hop, jump, balance, throw/catch etc) of those children taking part in the intervention compared with a control group. In addition, a parental resource will be developed that supports parents to improve physical literacy of their children.
3.2	Buckinghamshire County Council should continue to work with young people and their families, schools and other partners to ensure more children and young people are physically active particularly in the teenage years.	✓ Active Bucks (particularly the website and free voucher) has been promoted through various school networks with a large number of children and young people having actually taken part in Active Bucks activities. In 2017, many of the activities will target children and young people ✓ Public Health has funded a Primary School Daily Mile project, highlighted in the Childhood Obesity Strategy as good practice, across 20 primary schools in Bucks throughout the 2016/17 academic year. ✓ Public Health have funded a Girls Active project across 11 secondary schools in Bucks throughout the 2016/17 academic year to engage inactive (non-sporty) girls in school year 9 in regular physical activity

4	**Working Age Adults**	
4.1	Local businesses and employers should explore whether they could help more employees become more active e.g. through increasing active travel, greater awareness of opportunities to be active, participation in the Workplace Challenge initiative or by volunteering to support community activities. NHS organisations and local government as very significant local employers have a key role in this area.	✓ The national Workplace Challenge continues to be promoted to business in Bucks. In 2017 more activities, promotions and competitions will be delivered by Leap to engage working age adults and record their activity though the online workplace challenge portal. ✓ Active Bucks has been comprehensively promoted through the Buckinghamshire and Thames Valley Local Enterprise Partnership (TVLEP) ✓ Conference held by Janssen & Janssen in High Wycombe to engage businesses in Bucks to improve promotion of healthy lifestyles to employees.
5	**Older Adults**	
5.1	Local organisations should continue to develop more opportunities for older adults to access regular group-based physical activity opportunities as a vital way to maintain health and independence and social networks.	✓ Active Bucks continues to offer and promote opportunities to be regularly active to this audience – including activities that reduce the risk of falls such as Tai Chi, Dance, Gardening and Strength & Balance. ✓ Active Bucks has also increased the number of regular health walks across Bucks – by March 2017 we hope to have 86 regular walks in place across Bucks.
5.2	Ensure design of the built environment supports older people to be more active.	✓ District Councils have consulted on their draft local plans and the County Council has responded. Plans have included the planning policies to ensure that new builds promote physical activity across all age groups in the population including older people. ✓ Through Active Bucks, the effective use of exiting, local assets such as village halls, church halls and natural green spaces is integral to the engagement of older adults in terms of accessibility and connecting with other local people to reduce social isolation.
5.3	Ensure that more residential care settings develop more opportunities for older adults to participate in regular evidence based physical activity that will help prevent falls and maintain physical and mental health.	✓ Staff from 9 residential care homes across Bucks have attended Chair-Based Exercise training and follow-up mentoring support. A 6-month weekly programme will be delivered and monitored through 2017.
5.4	Social care services and commissioners should consider how best to support frontline staff in encouraging older people to be more active.	✓ Information on Active Bucks and communicating this to clients/service users has been delivered to some social care teams. More awareness amongst social workers required in 2017.

6	Health Services	
6.1	Ensure the promotion of physical activity is a major part of the "radical upgrade in prevention" that the NHS has to deliver by ensuring physical activity is a key part of the care planning discussions with patients and that patients can be signposted to appropriate local physical activity opportunities.	✓ Promoting physical activity has been identified as a priority area by the NHS Sustainability and Transformation plan in Buckinghamshire. Key areas include: • Developing Primary Care clinical champions for physical activity to provide physical activity brief advice • Physical activity to be embedded into priority clinical pathways • Proactively promoting physical activity and healthy lifestyles in all clinical settings to prevent decline in cognitive functions in older people • Promote physical activity of staff including walking and cycling to and from work.
6.2	Ensure the promotion of physical activity is a major part of the "radical upgrade in prevention" that the NHS has to deliver by commissioning clinical services that offer consistent physical activity advice as part of the treatment discussions with patients including services for people with diabetes, heart disease, cancer and musculoskeletal conditions.	✓ The Live Well, Stay Well hub, that allows clinicians to refer patients that require lifestyle change, incorporates physical activity advice, assessment and referral/signposting ✓ The Bucks Diabetes pathway includes information and advice on physical activity as part of its pre-diabetes and main diabetes pathways ✓ Physical activity information and advice and signposting has been incorporated into the Cancer pathways in Bucks ✓ Work is underway to incorporate local Exercise Referral pathways in local leisure centres into the Live Well, Stay Well process.
6.3	Ensure the promotion of physical activity is a major part of the "radical upgrade in prevention" that the NHS has to deliver by continuing to commission appropriate clinical services such as cardiac rehabilitation and pulmonary rehabilitation with evidence based physical activity components.	✓ Effective Cardiac and Pulmonary Rehabilitation programmes continue to be commissioned by Bucks Healthcare Trust and offer exercise as a key component in the treatment of patients with related long-term conditions to support improved quality of life
6.4	Ensure the promotion of physical activity is a major part of the "radical upgrade in prevention" that the NHS has to deliver by ensuring appropriate training for the workforce to ensure they are skilled and confident in brief behaviour change advice, motivational interviewing and providing advice about physical activity to the people they are caring for.	✓ Public Health England-approved physical activity brief intervention training (Physical Activity Clinical Champion) delivered at both CCG protected learning time sessions to GPs and Nurses ✓ See Recommendation 6.1.

7	Residents	
7.1	Residents should consider how they could build more activity into their daily routine to reap the benefits of a more active life.	✓ This is a strategic objective of the current Physical Activity Strategy ✓ Working to increase access to areas of green space through more opportunities to be active ✓ Increase opportunities to actively travel to school, such as School Travel Plans and School Travel Zones (which encourage parking further out and walking the extra 5 or 10 minutes to school), and to the workplace through improved cycle parking ✓ Desk-based exercises encouraged through demonstrations at 2016 CHASC Business Unit conference and the Clinical Commissioning Groups AGM.

Overview data supplement

Public Health Outcomes Grid - Director of Public Health's Annual Report - Buckinghamshire 2016

Indicator Name	Unit	Year	Bucks Count	Bucks Value	South East Value	England Value	Time series	CIPFA rank 1=Best 16= worst
Overarching								
Healthy life expectancy at birth (Male)	Years	2012-14	-	69.5	65.9	63.4		1
Healthy life expectancy at birth (Female)	Years	2012-14	-	67.8	66.6	64.0		4
Life expectancy at birth (Male)	Years	2012-14	-	81.4	80.5	79.5		2
Life expectancy at birth (Female)	Years	2012-14	-	85.0	84.0	83.2		1
Wider Determinants								
School readiness: % children achieving good level of development at the end of reception	%	2014/15	4,364	68.4	70.1	66.3		4
Sickness absence - % of employees who had at least one day off in the previous week	%	2011-13	-	1.9	2.4	2.4		5
Killed or seriously injured casualties on England's roads	Rate per 100,000	2012-14	675	43.6	47.9	39.3		8
Violent crime including sexual violence - violence offences per 1,000 population	Rate per 1,000	2015/16	5,453	10.4	16.8	17.2		3
Social Isolation - % of adult social care users who have as much social contact as they would like	%	2015/16	-	41.4	46.8	45.4		4
Fuel poverty	%	2014	16,462	7.9	8.3	10.6		6
Children in care	Rate per 10,000	2015	435	37.0	49.0	60.0		5
Health Improvement								
Low birth weight of term babies	%	2014	134	2.5	2.4	2.9		9
Excess weight in 4-5 year olds (NCMP)	%	2014/15	1,090	18.6	20.3	21.9		3
Excess weight in 10-11 year olds (NCMP)	%	2014/15	1,377	26.7	30.1	33.2		2
Smoking Prevalence in adults - current smokers (APS)	%	2015	-	11.0	15.9	16.9		1
Excess weight in adults	%	2013-2015	-	61.7	63.3	64.8		3
Adults reporting as physical inactive (<30 mins of moderate to high intensity physical activity/week)	%	2015	-	22.0	25.1	28.7		1
Recorded Diabetes	%	2014/15	25,116	5.9	5.7	6.4		6
Admission episodes for alcohol-related conditions - narrow definition	Rate per 100,000	2014/15	2,526	502.3	518.9	640.8		3
Cancer screening coverage - Breast	%	2015	45,703	79.9	76.8	75.4		2
Cancer screening coverage - Cervical	%	2015	102,872	75.9	74.7	73.5		5
Cancer screening coverage - Bowel	%	2015	43,522	57.3	59.2	57.1	N/A	15
Cumulative % of the eligible population offered an NHS Health Check who received an NHS Health Check	%	2013/14-15/16	43,651	43.9	45.1	48.6	N/A	10
Self-reported wellbeing - People with a low happiness score	%	2014/15	-	7.7	8.0	9.0		8
Self harm in children: Hospital admissions as a result of self-harm 10-24yrs	Rate per 100,000	2014/15	325	364.8	414.9	398.8		4
Average difficulties score for all looked after children aged 5-16 who have been in care for at least 12 months	Score	2014/15	-	13.9	14.6	13.9		N/A
Emergency hospital admissions for intentional self-harm	Rate per 100,000	2014/15	691	135.1	193.1	191.4		3
Under 18 conceptions	Rate per 1,000	2014	124	12.8	18.8	22.8		1
Health Protection								
Chlamydia detection rate (15-24)	Rate per 100,000	2015	766	1,316.6	1,527.0	1,887.0		12
Children in care with up to date immunisations	%	2015	300	93.8	82.2	87.8		4
Population vaccination coverage - Flu (aged 65+)	%	2015/16	70,072	71.0	70.3	71.0		11
Population vaccination coverage - Flu (at-risk individuals)	%	2015/16	27,554	45.0	44.9	45.1		9
HIV late diagnosis	%	2013-15	36	45.6	43.6	40.3		5
Incidence of TB	Rate per 100,000	2013-15	129	8.2	7.6	12.0		15
Healthcare and Premature Mortality								
Infant mortality	Rate per 1,000	2013-15	63	3.5	3.2	3.9		9
Under 75 mortality rate from all CVD	Rate per 100,000	2013-15	689	52.0	62.3	74.6		1
Under 75 mortality rate from all Cancers	Rate per 100,000	2013-15	1,504	113.1	129.4	138.8		1
Excess under 75 mortality rate in adults with serious mental illness	Indirectly standardised ratio	2013/14	-	302.6	338.9	351.8		3
Suicide rate	Rate per 100,000	2013-15	113	8.5	10.2	10.1		2
Hip fractures in people aged 65 and over	Rate per 100,000	2014/15	532	533.9	559.7	571.3		7
Excess winter deaths Index - 3 years	Ratio	Aug 2012-Jul 2015	653	17.0	18.8	19.6		3
Mortality rate from causes considered preventable	Rate per 100,000	2013-2015	1,976.3	134.1	161.2	184.5		1

Better Similar Worse Lower Similar Higher
Not Compared

Glossary

Attachment describes the bond between parent and child.

Attention deficit hyperactivity disorder is a group of behavioural symptoms that include inattentiveness, hyperactivity and impulsiveness. Symptoms of ADHD tend to be noticed at an early age and may become more noticeable when a child's circumstances change, such as when they start school. Most cases are diagnosed when children are 6 to 12 years old.

Bipolar disorder, formerly known as manic depression, is a condition that affects your moods, which can swing from one extreme to another. People with bipolar disorder have periods or episodes of depression (feeling very low and lethargic) and mania (feeling very high and overactive).

Body mass index (BMI) is a measure that uses your height and weight to work out if your weight is healthy (weight in kg divided by height in metres squared).

Child in Need is defined under the Children Act 1989 as a child who is unlikely to achieve or maintain a reasonable level of health or development, or whose health and development is likely to be significantly or further impaired, without the provision of services; or a child who is disabled.

Child Protection Plan - if a child is made the subject of a child protection plan, it means that the child is believed to be at risk of significant harm, including physical, emotional, or sexual abuse or neglect.

Confidence interval is an interval that contains the unknown population parameter, for example, the population mean, with a specified probability, usually 95%. A confidence interval provides a measure of the precision of an estimate.

Congenital malformation is a condition present at or before birth, regardless of cause.

Fetal alcohol spectrum disorder (FASD) are a group of conditions that can occur in a person whose mother drank alcohol during pregnancy. These effects can include physical problems and problems with behaviour and learning.

Fetal alcohol syndrome is a type of fetal alcohol spectrum disorder.

Gastroenteritis is a very common condition that causes diarrhoea and vomiting.

Gestational diabetes is high blood sugar that develops during pregnancy and usually disappears after giving birth. It can occur at any stage of pregnancy, but is more common in the second half.

Looked after Child is defined under the Children Act 1989. A child is looked after by a local authority if a court has granted a care order to place a child in care, or a council's children's services department has cared for the child for more than 24 hours.

Long acting reversible contraception (LARC) is a type of birth control that doesn't depend on you remembering to take or use them to be effective. They include intra-uterine devices, intra-uterine systems, implants and injections.

Low birth weight – this is used to describe a baby born weighing less than 2.5kg.

Miscarriage - If you lose your baby in the first 24 weeks of pregnancy, it is called a miscarriage. Most women experience vaginal bleeding but occasionally there may be no symptoms. If this is the case, the miscarriage may be diagnosed by an ultrasound scan.

National Institute for Health and Care Excellence (NICE) provides national guidance and advice to improve health and social care and recommend a series of quality standards designed to improve outcomes for mother and baby.

Placental abruption is a serious condition in which the placenta starts to come away from the inside of the womb wall before the baby has delivered. This is an emergency because it means that the support system for the baby fails.

Postnatal depression is a type of depression affecting parents after having a baby.

Postpartum psychosis is a severe episode of mental illness which begins suddenly in the days or weeks after having a baby. Symptoms vary and can change rapidly. They can include high mood (mania), depression, confusion, hallucinations and delusions. Postpartum psychosis is a psychiatric emergency.

Post-traumatic stress disorder (PTSD) is an anxiety disorder caused by very stressful, frightening or distressing events. Someone with PTSD often relives the traumatic event through nightmares and flashbacks, and may experience feelings of isolation, irritability and guilt.

Pre-eclampsia is a condition that affects some pregnant women, usually during the second half of pregnancy (from around 20 weeks) or soon after their baby is delivered. Early signs of pre-eclampsia include high blood pressure and protein in your urine. It's unlikely that you'll notice these signs, but they should be picked up during routine antenatal appointments. Although many cases are mild, the condition can lead to serious complications for both mother and baby if it's not monitored and treated. The earlier pre-eclampsia is diagnosed and monitored, the better the outlook for mother and baby.

Premature rupture of membranes is the breaking of the mother's water(s) more than 1 hour before the onset of labour.

Premature birth is a birth that takes place more than three weeks before the baby is due or in other words, one that occurs before the start of the 37th week of pregnancy.

Preterm birth – see premature birth

Puerperal Psychosis – see postpartum psychosis.

Spina Bifida is a condition where the spine does not develop properly leaving a gap in the spine.

Stillbirth – if a baby is born dead after 24 completed weeks of pregnancy this is classified as a stillbirth.

Sudden unexpected death in infancy (SUDI) is the sudden, unexpected and unexplained death of an apparently healthy baby. SUDI is rare and most deaths happen during the first six months of a baby's life. Infants born prematurely or with a low birthweight are at greater risk. SUDI also tends to be slightly more common in baby boys. SUDI usually occurs when a baby is asleep, although it can occasionally happen while they're awake. Parents can reduce the risk of SUDI by not smoking while pregnant or after the baby is born, and always placing the baby on their back when they sleep.

Term – pregnancy between 37 and 42 weeks gestation

Trimesters – a normal full-term pregnancy can range from 37 to 42 weeks and is divided into three trimesters, each lasting between 12 and 14 weeks.

Anaemia is a condition where there is a decrease in the total amount of red blood cells or haemoglobin in the blood

Rhesus D status refers to blood group. It is important because if the mother has rhesus negative blood (RhD negative) and the baby in her womb has rhesus positive blood (RhD positive) this can result in rhesus disease. The mother must have also been previously sensitised to RhD positive blood.

Sickle cell diseases is the name for a group of inherited conditions that affect the red blood cells. Sickle cell disease mainly affects people of African, Caribbean, Middle Eastern, Eastern Mediterranean and Asian origin. People with sickle cell disease produce unusually shaped red blood cells that can cause problems because they don't live as long as healthy blood cells and they can become stuck in blood vessels.

Thalassaemias is the name for a group of inherited conditions that affect a substance in the blood called haemoglobin. People with the condition produce either no or too little haemoglobin, which is used by red blood cells to carry oxygen around the body. This can make them very anaemic (tired, short of breath and pale). It mainly affects people of Mediterranean, South Asian, Southeast Asian and Middle Eastern origin.

Down's syndrome is a genetic condition that typically causes some level of learning disability and characteristic physical features.

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